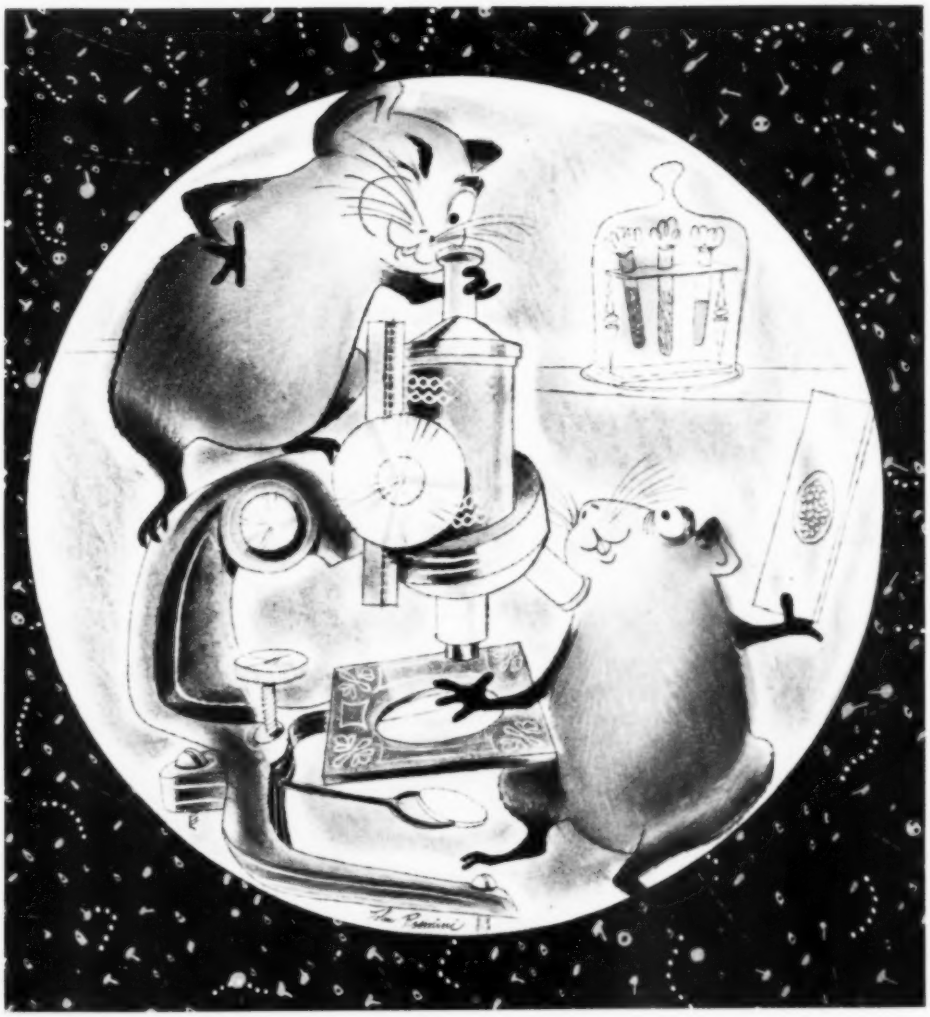
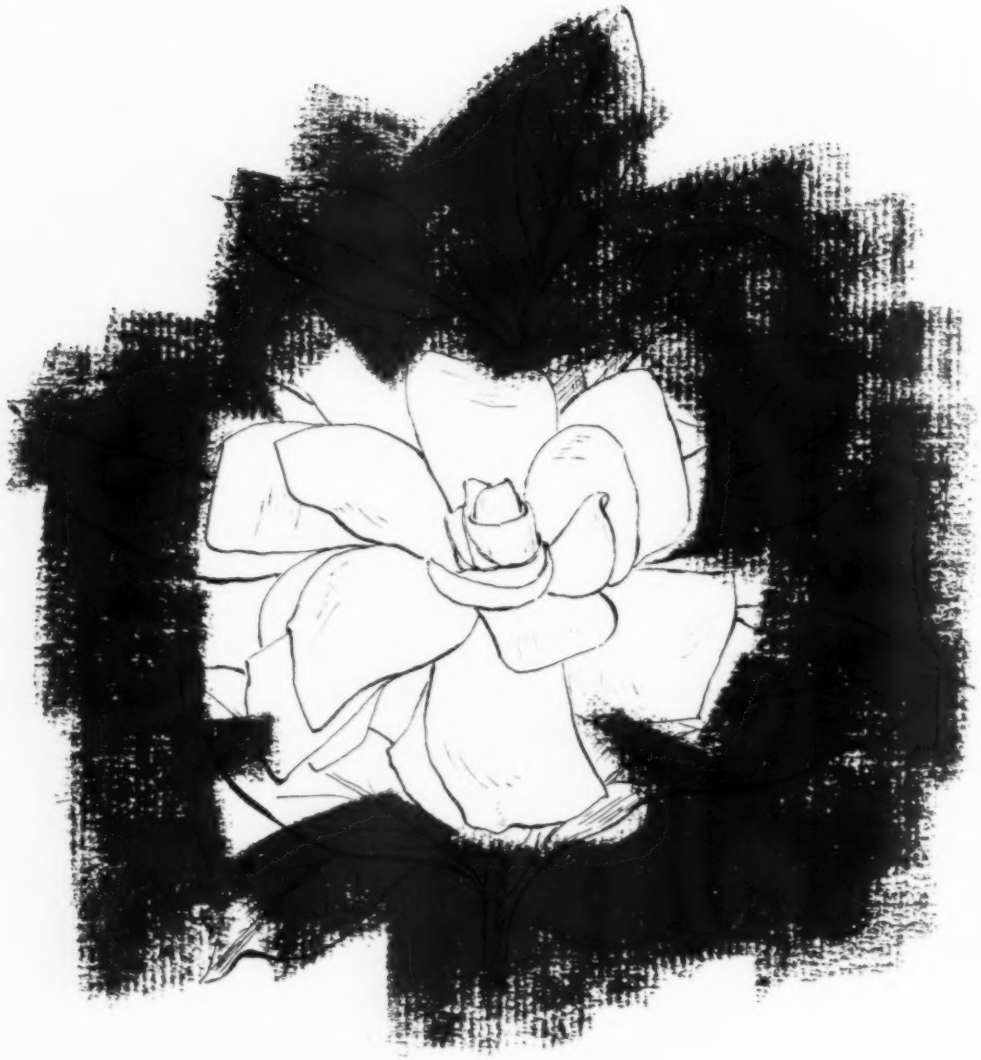
MARCH 1955

Drug and Cosmetic Industry

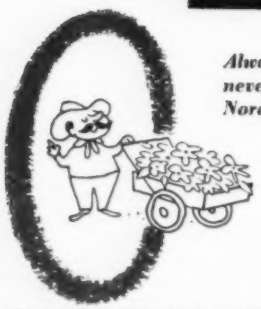


including packaging and selling



NORDA does what Nature does . . .

NORDA makes good scents



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✓ Higher solubility ✓ Better taste

✓ No solubilizer needed ✓ Commercial production

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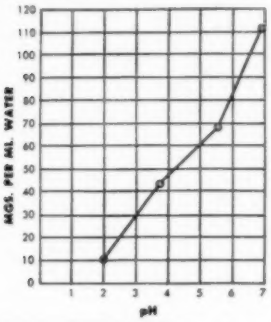

SOLUBILITY of Roche riboflavin-5′-phosphate sodium in water at different pH levels; room temperature.

These data show that solubility of Roche B_2 phosphate sodium depends on hydrogen ion concentration in water. It is useful to note that the solubility of riboflavin U.S.P. (approximately 0.12 mg. per ml.) inserted on graph would fall just above the base line.

specifications

Tests show that B_2-5′ (M.W. 514.4) has the full theoretical activity on the molecular basis of riboflavin (M.W. 376.36). Theoretically one gram of the phosphate is equivalent to 0.73 grams of riboflavin. The Roche product contains small amounts of moisture, disodium salt, diphosphate ester and unesterified riboflavin. It has a riboflavin activity of 70-73% by weight.

biological availability

Roche riboflavin-5′-phosphate sodium has immediate biological activity because it is identical with the natural flavin mononucleotide occurring in the "yellow" respiratory tissue enzyme system.

better taste

Roche riboflavin-5′-phosphate sodium does not have the intensely bitter taste of riboflavin itself. It is more palatable in high concentrations. The different taste is of definite advantage in oral preparations.

solubility—taste demonstration

You can prove to yourself, easily and quickly, the solubility-taste advantages of Roche riboflavin-5′-phosphate sodium with the Roche demonstration kit. Ask your Roche representative to show it to you. Or we'll be glad to send one, without charge, at your request.

cost comparison

Even though the cost of Roche B_2-5′ is somewhat higher than regular riboflavin, its use can result in actual savings. You eliminate expensive solubilizers and unnecessarily large amounts of niacinamide. You reduce or eliminate costly complaints and returns. You are able to make manufacturing economies.

stability

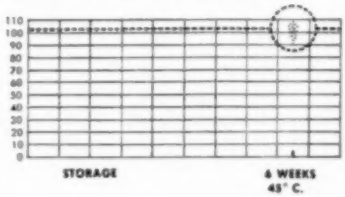

Chart demonstrates stability of Roche product in B-complex parenteral solutions with and without vitamin C over wide potency range.

uses

The new riboflavin-5′-phosphate sodium, probably the most important riboflavin development since Roche introduced the vitamin commercially in 1941, is specially designed for use in manufacturing:

- vitamin parenteral solutions
- water-dispersible multivitamin drops and gelatin capsules
- tablets (in which rapidly-soluble riboflavin is desirable)

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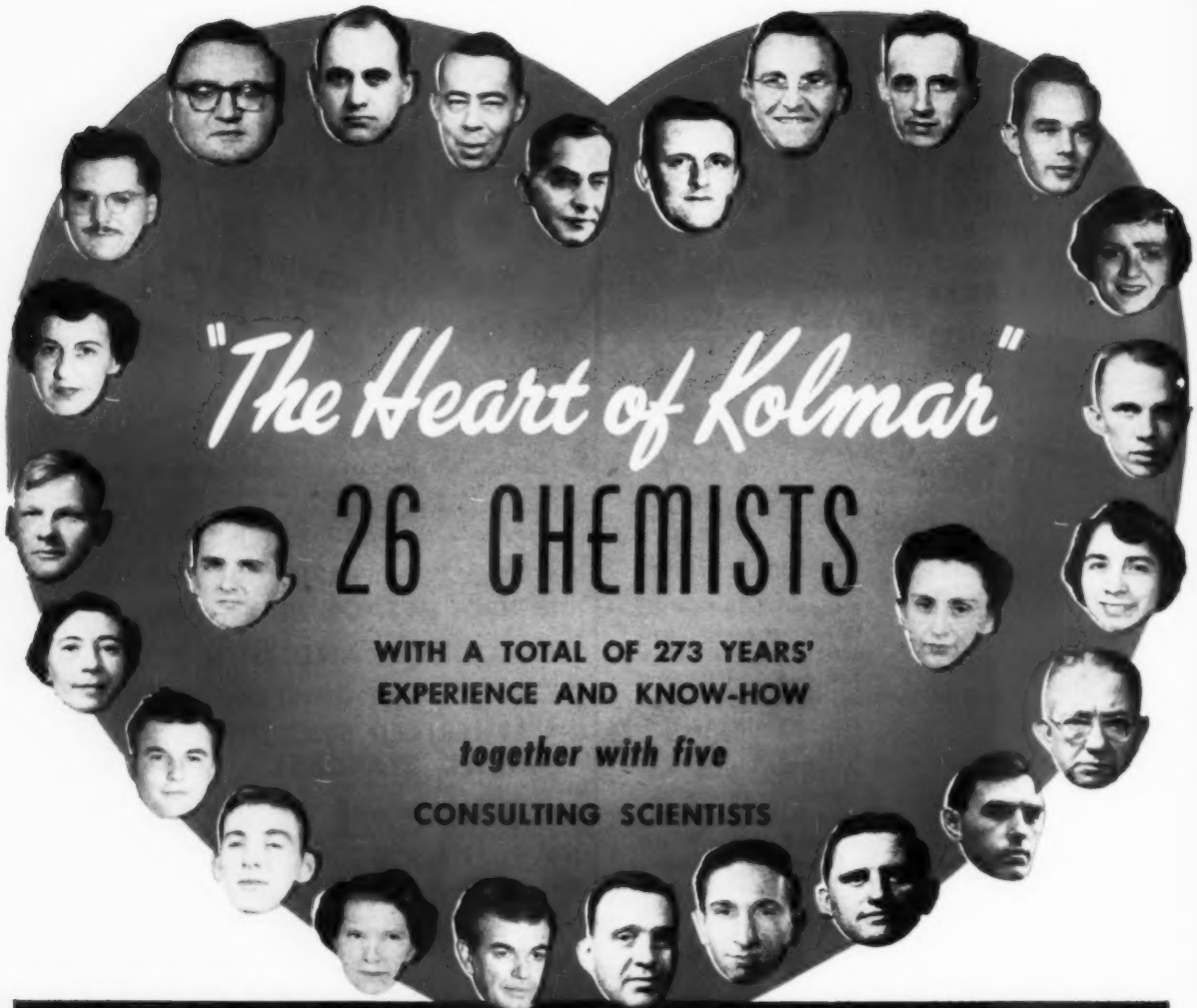
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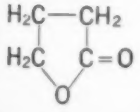
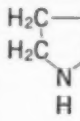
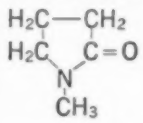
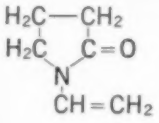
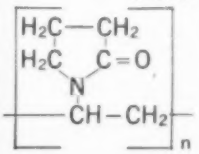
BUTYRO-LACTONE 	Powerful organic solvent for polyacrylonitrile, cellulose acetate, polystyrene, etc. Selective solvent for acetylene in natural gas. Chemical intermediate for aliphatic and cyclic compounds.
2-PYRROLIDONE 	Polymerizes to high molecular weight, linear, nylon-type, polyamide condensation product. Gives γ-aminobutyric acid and derivatives, also N-acyl lactams.
N-METHYL-2-PYRROLIDONE 	Powerful organic solvent for acrylonitrile polymers and copolymers, cellulose triacetate, etc. Selective solvent for acetylene in natural gas. Spinning agent for polyvinyl chloride solution.
N-VINYL-2-PYRROLIDONE 	Will copolymerize with almost all vinyl monomers. Permits modification of many properties in existing homopolymers. Gives control of hydrophobic and hydrophilic properties of products.
POLYVINYL-PYRROLIDONE (PVP) 	Binder, stabilizer, detoxifier, protective colloid, thickener, film former. Physiologically compatible. Wide solubility range. For use in pharmaceuticals, cosmetics, foods, detergents, dye stripping, synthetic fiber additive, size component, lithography, agricultural chemicals, etc.

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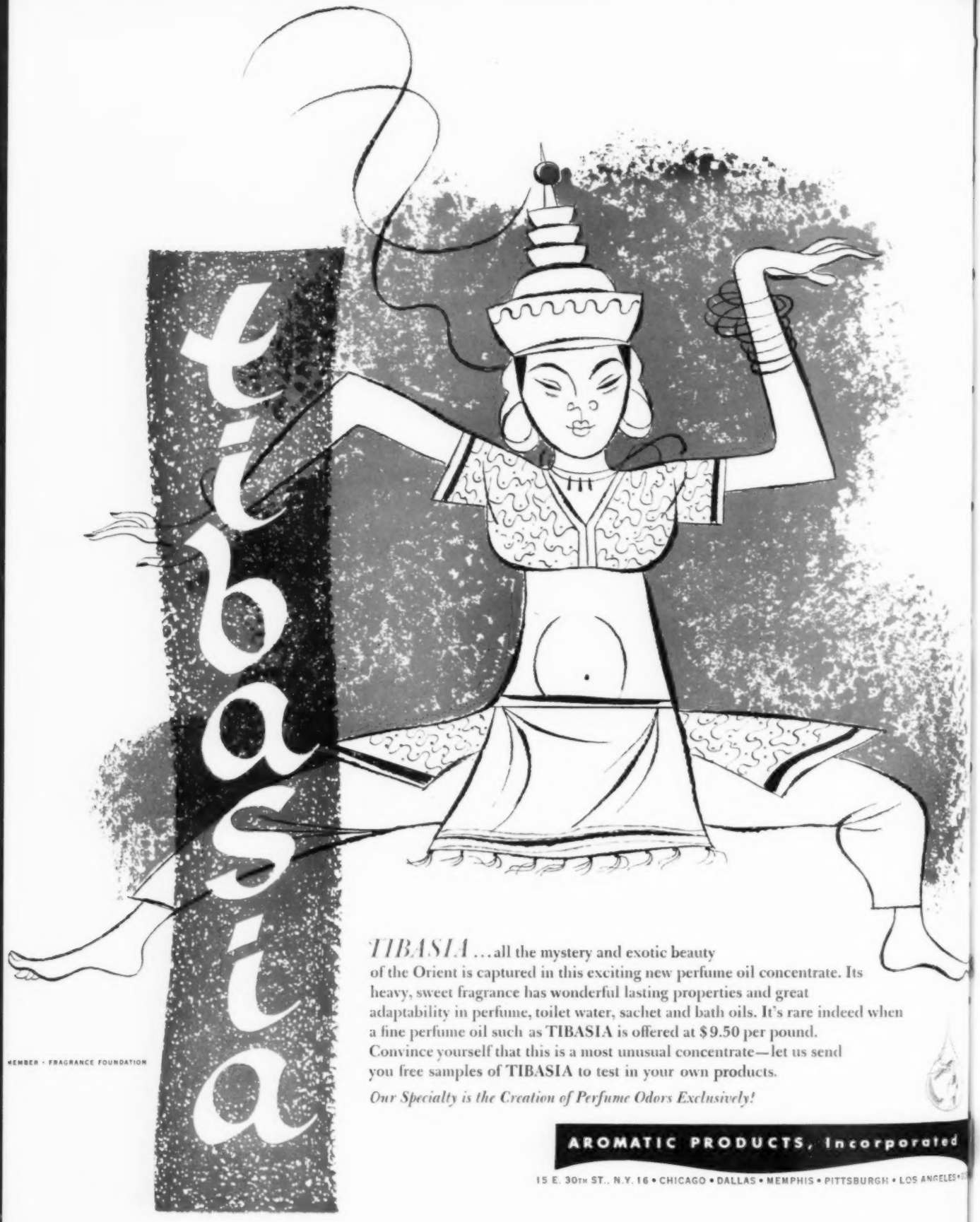

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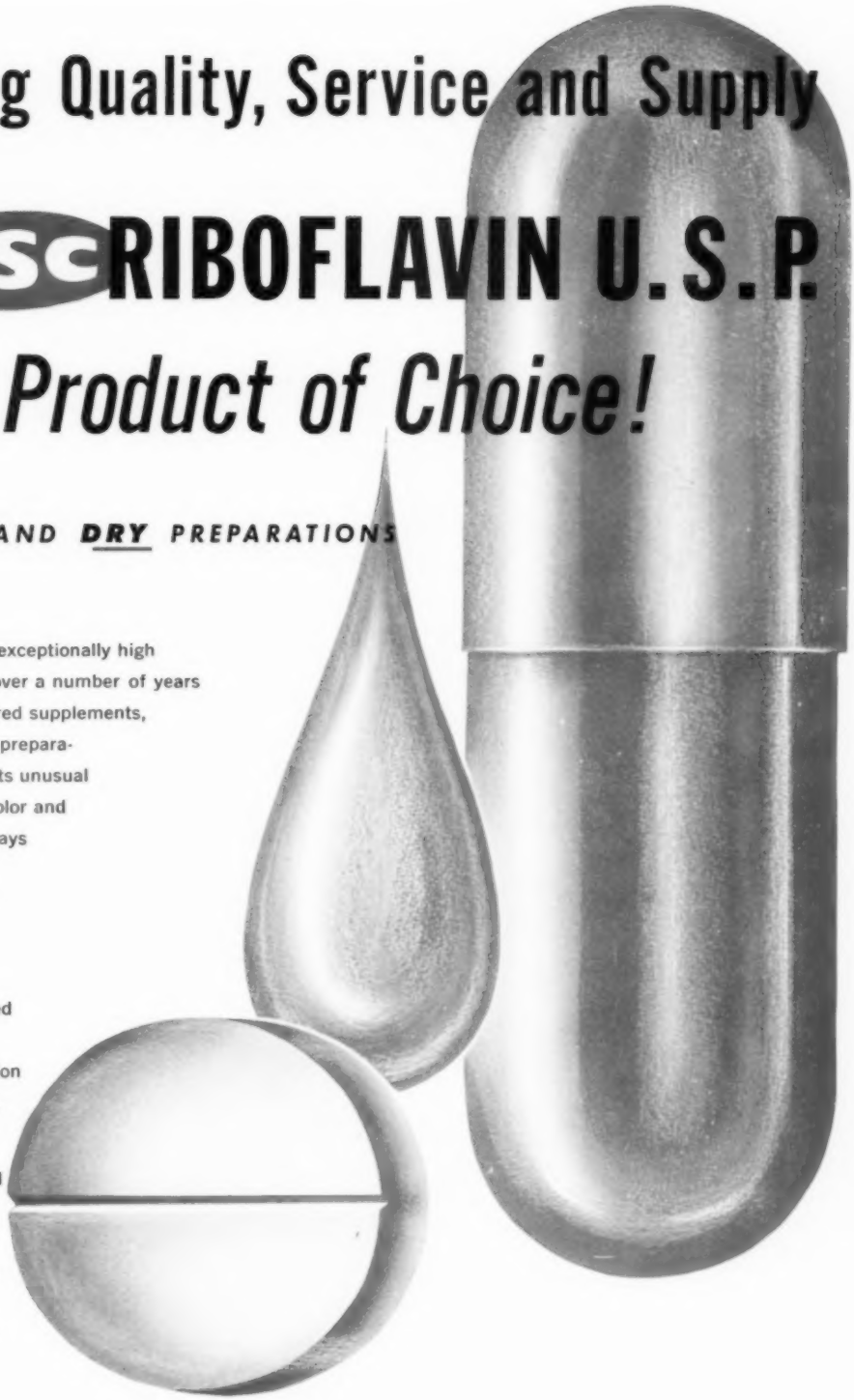

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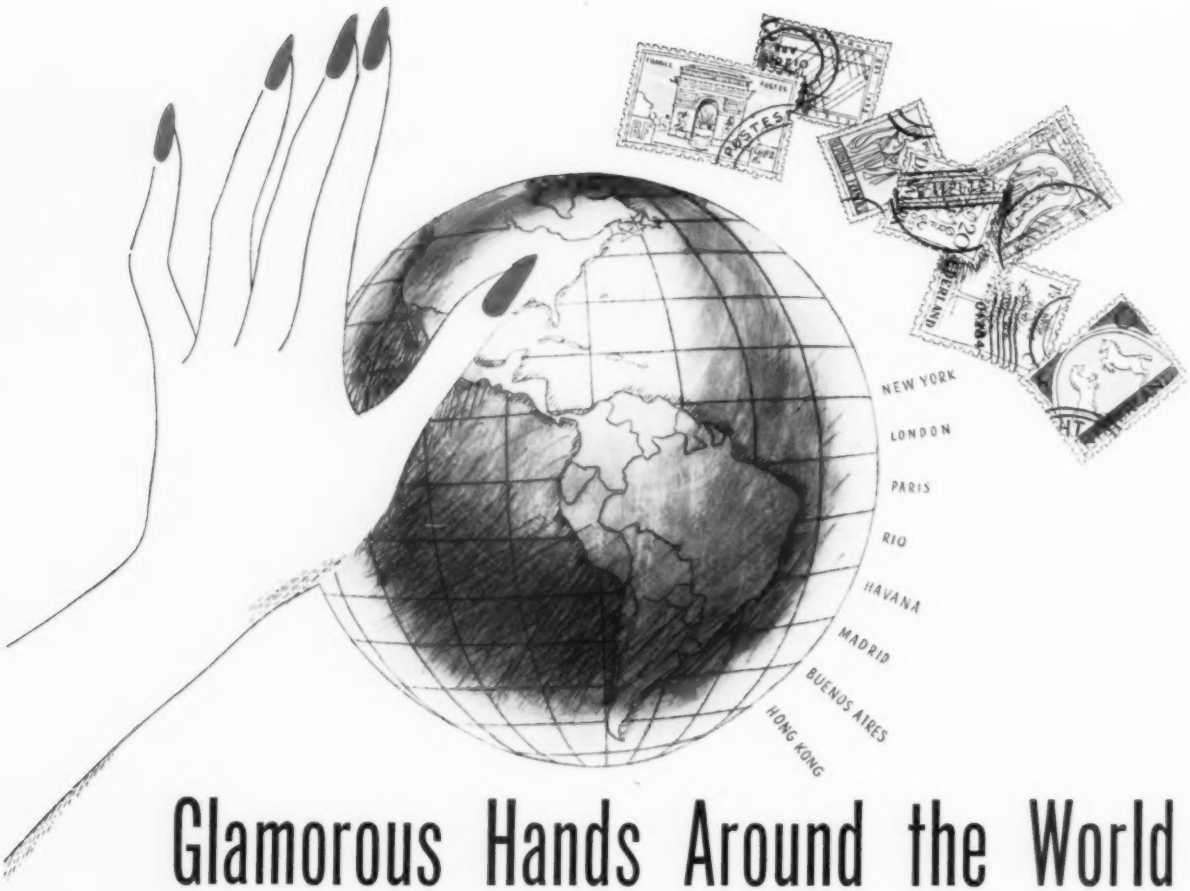

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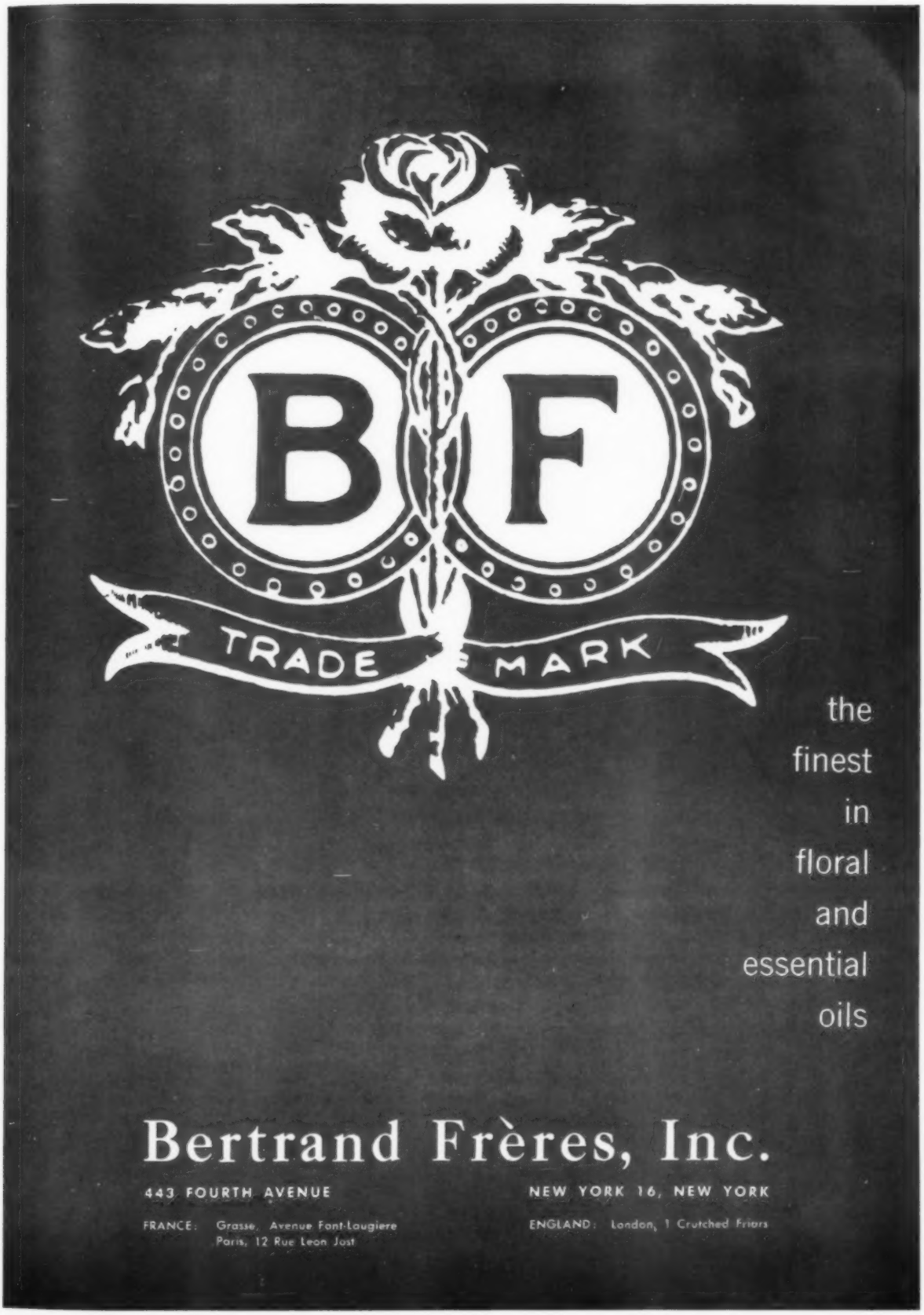
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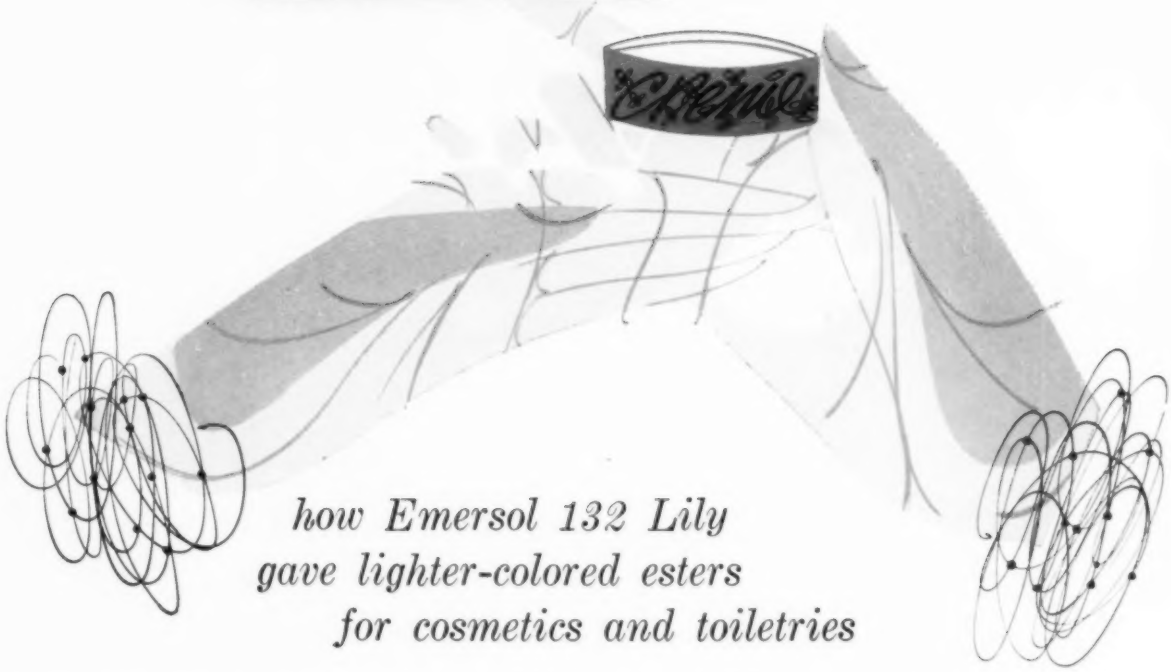

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If your manufacturing process involves prolonged heating or exposure to high temperatures, then this actual experience may help solve your problems: *Case History No. 12-41 . . . Because of the higher purity associated with lighter-colored products, this well-known manufacturer of esters was approached for lighter-colored monostearates for use in cosmetics, toiletries, and similar type products. Since esters are exposed to high temperatures during manufacturing, this producer's logical approach was to investigate the color stability of his ingredients. On checking various stearic acids, he found that the outstanding color stability of Emersol 132 Lily gave him exceptionally light-colored monostearates, far better than those from all others tested. And since Emersol 132 costs no more than competitive triple-pressed grades, this extra "sales-appeal" cost him nothing.*

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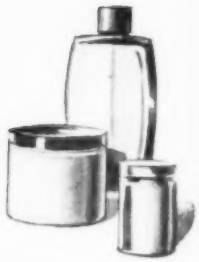

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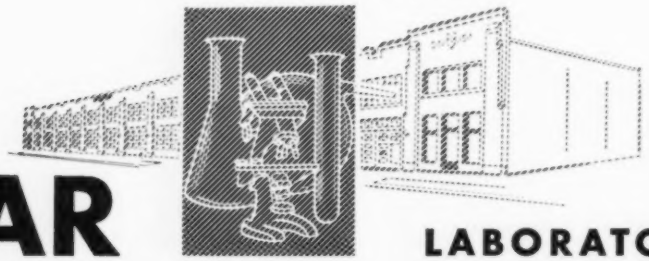

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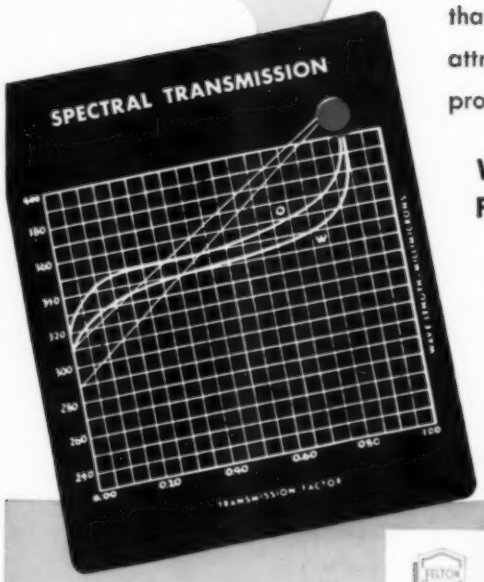

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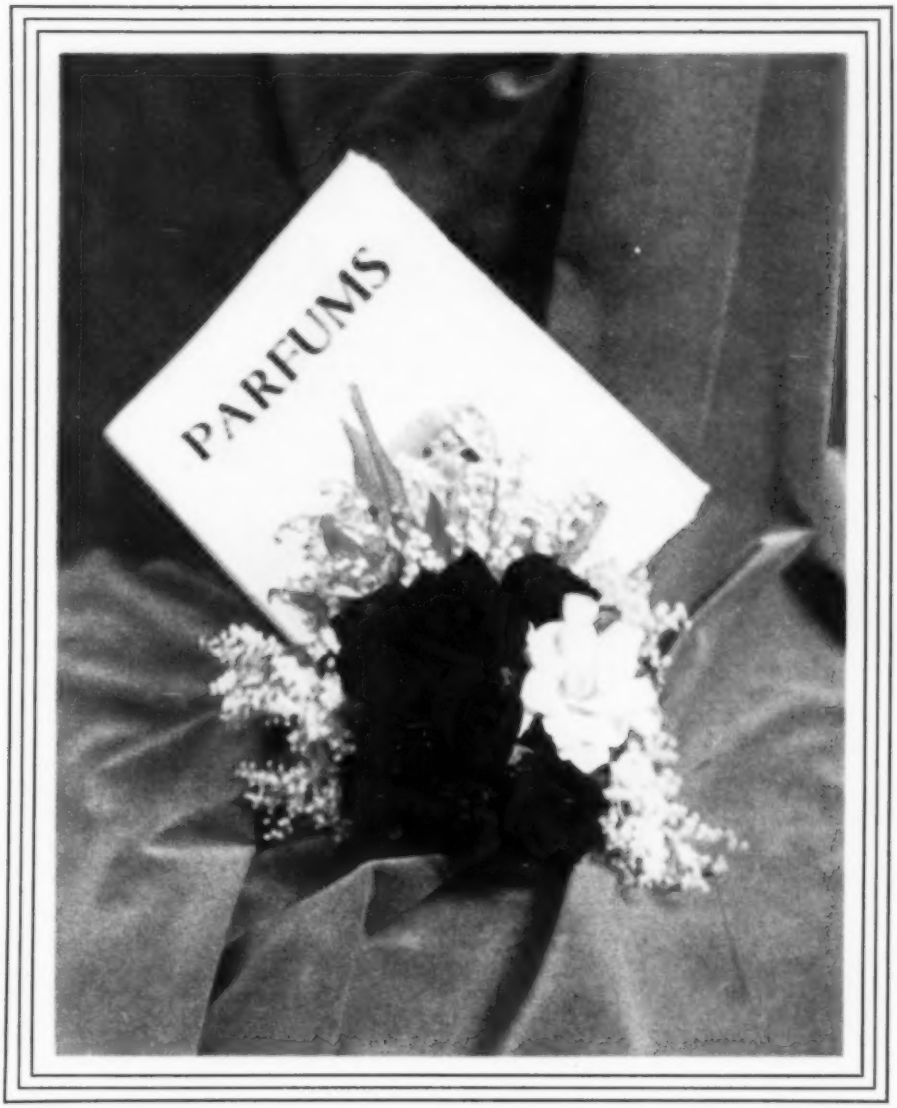

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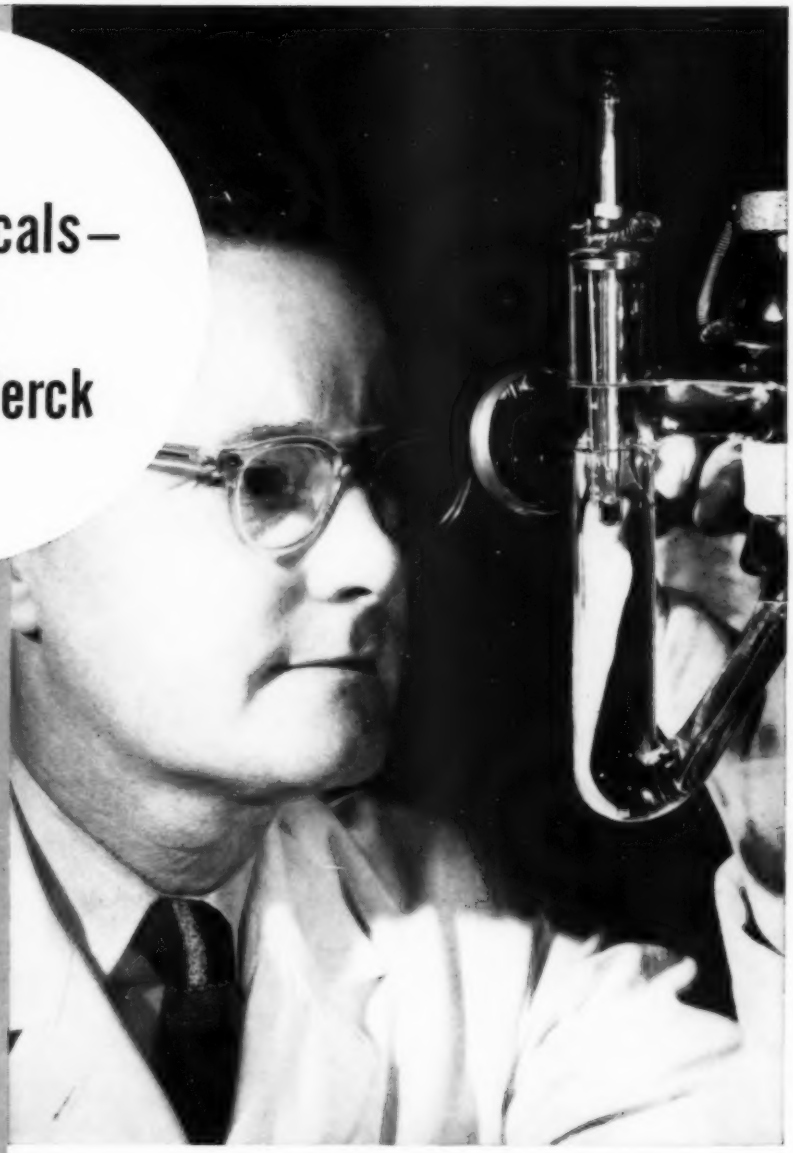

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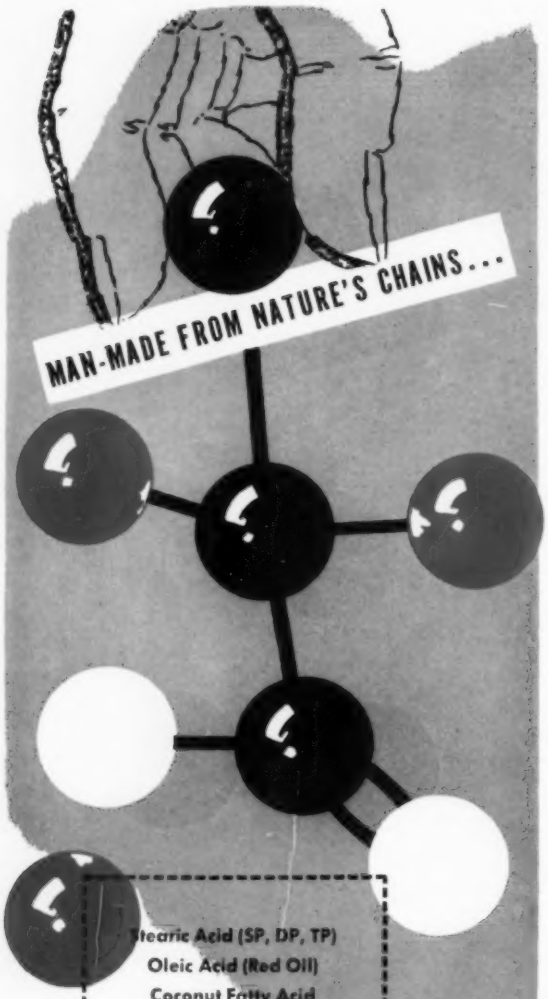

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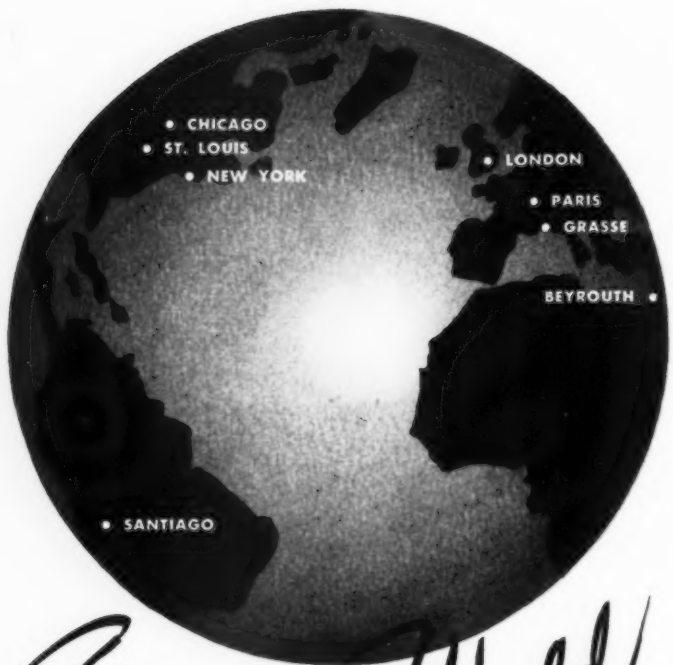

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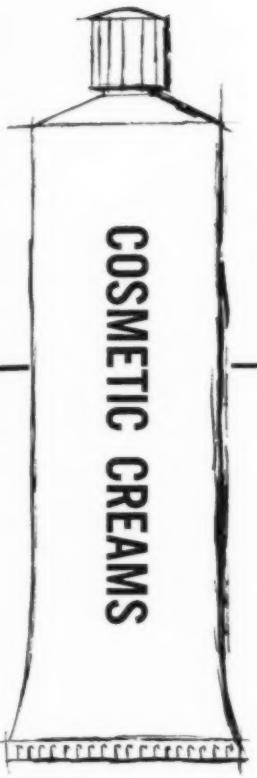

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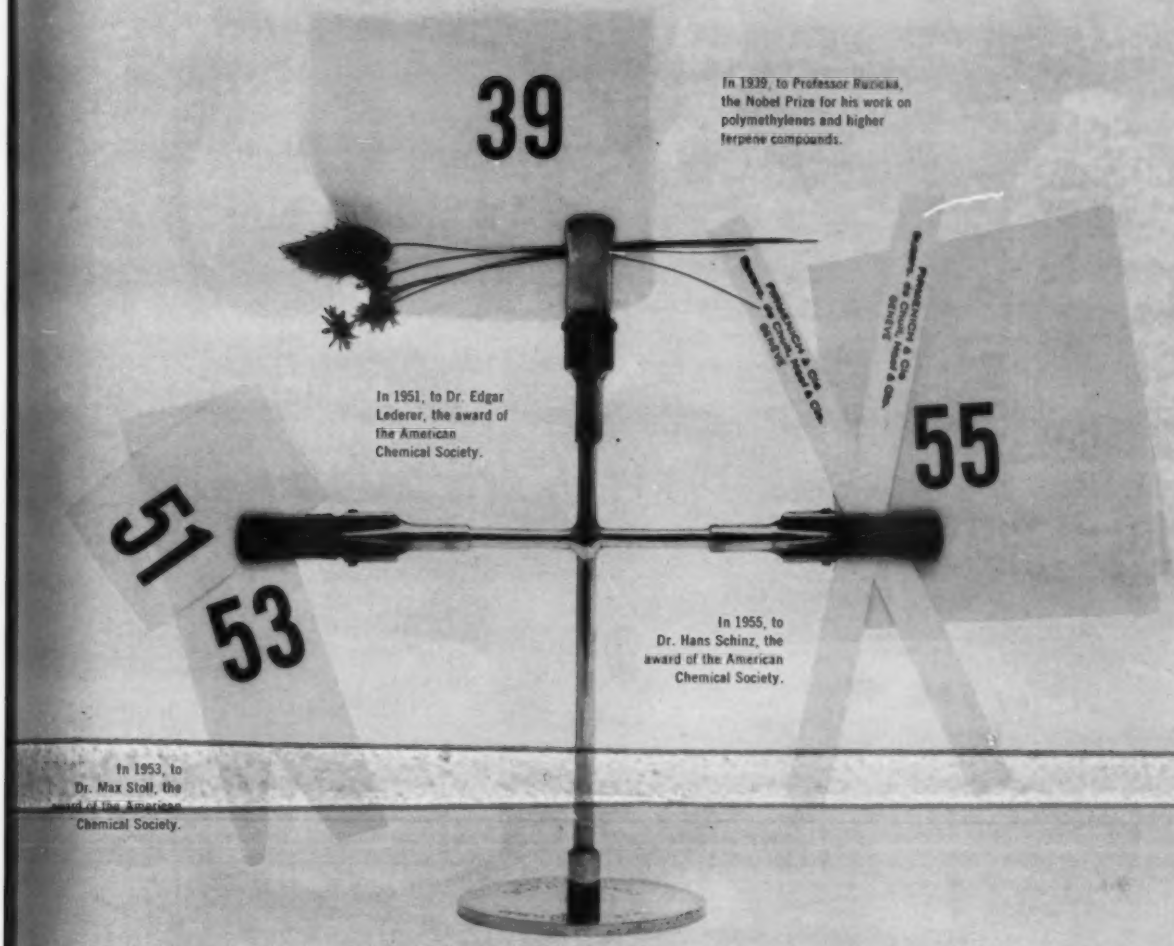
39
In 1939, to Professor Ruzicka, the Nobel Prize for his work on polymethylenes and higher terpene compounds.
In 1951, to Dr. Edgar Lederer, the award of the American Chemical Society.
55
51
53
In 1955, to Dr. Hans Schinz, the award of the American Chemical Society.
In 1953, to Dr. Max Stoll, the award of the American Chemical Society.

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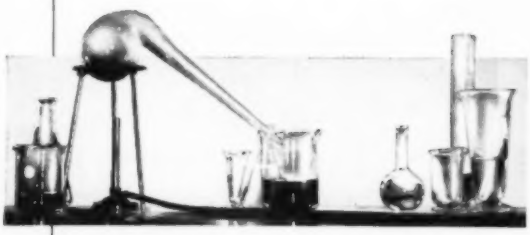

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Keeping Posted

A. M. A. Drops Seal

The American Medical Association is discontinuing its seal of approval on food, drugs, devices, and cosmetics. In an editorial in the February 19 issue of the Journal of the American Medical Association, it was stated that the seal may be seen for a time while printed advertising matter is being used up, but "it is only a matter of time before an 'A.M.A. seal' is a thing of the past.

"The familiar statement 'Accepted for Advertising in the Publications of the American Medical Association' served a useful purpose, along with the acceptance by various A.M.A. product-evaluating councils of drugs, foods, devices, and cosmetics complying with their standards," says the A.M.A. "However, the need for such programs has become less as laws have been enacted and as manufacturers have assumed more and more their share of responsibility in marketing worthwhile products."

A major reason for the discontinuance of the seal is so the A.M.A. can provide more and faster information on new advances in medicine. The editorial in the Journal said:

"One of the programs seemingly in greatest demand by the profession is one that calls for more information on the more recent advances in health problems. Various devices introduced in recent years have posed questions for true usefulness; new drugs have raised problems concerning their proper use and possible toxicity; cosmetic-type preparations have become complicated by the introduction of synthetically prepared ingredients, and nutrition, although long studied, has many phases in need of study and report. To meet the demand caused by the tremendously and broadly expanding horizon in diagnostic, curative, and preventive medicine is a problem of no small dimensions. Therefore, the Board of Trustees and its councils have decided to spend more time on this important phase of their work and to increase this work to match the need."

The councils will expand their programs by issuing "reports promptly on what is new in diagnostic, curative, and preventive medicine; they will periodically review the status of agents and techniques; they will develop basic standards for classes of goods as, for example, the Council on Physical Medicine and Rehabilitation has done for resuscitators and inhalators; and they will undertake educational efforts to insure as much as possible the utilization of the information they gather, digest and evaluate."

The councils will publish this information in the Journal, issue books or booklets bringing the facts together "handily and usefully," and use other means for publicizing their findings.

While the reasons given for discontinuance of the seal are interesting, isn't it true that effective enforcement of the Food, Drug and Cosmetic Act made the seal of lessened importance. Also, the rapidity with which new products are being marketed today, must complicate and multiply the work of any group in charge of the issuance of such a seal.

Warner-Lambert Merger

Merger of Lambert Company into Warner-Hudnut, Inc. was approved by the boards of directors of both companies last month, and is being submitted to the stockholders for approval this month. Under the plan the stock of Lambert is to be exchanged for stock of Warner-Hudnut, Inc. on a share-for-share basis. Warner-Hudnut has 1,271,555 shares outstanding, and Lambert has 774,621 shares.

Elmer H. Bobst, chairman of Warner-Hudnut, and Alfred E. Driscoll, president of Warner-Hudnut, will continue in the same positions in the combined company which is to be known as Warner-Lambert Pharmaceutical Company. Edward T. T. Williams, president of Lambert, will become chairman of the executive committee of the combination. John D. Miller, treasurer of Lambert, will become treasurer of the merged companies.

Lambert Company owns the Lambert Pharmacal Company (Listerine, Tooth Pastes, etc.), Pro-phy-lac-tic Brush Company, John Hudson Moore (toiletries), and Harrower Laboratories (prescriptions, drugs and biologicals). Lambert's principal factory is leased at St.

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Louis. It owns other plants and laboratories at Jersey City (Lambert Pharmacal), Florence, Mass. (Pro-phy-lac-tic), Toronto, Canada, England, Cuba and other countries.

Warner-Hudnut, Inc. is composed of the Chilcott Laboratories (prescription drug products), Standard Laboratories (proprietary drug products), and Richard Hudnut (cosmetics). Warner-Hudnut owns the modern pharmaceutical plant of the Chilcott Division in Morris Plains, N. J., it has a plant in St. Louis, and one in New York which is leased. The company also has sixteen foreign plants. At the meeting at which the merger was approved, the board of directors of Warner-Hudnut also approved purchase of three tracts near Lancaster, Pa., for erection of a new plant to produce the Hudnut and other products now made in New York.

Pharmaceuticals and other drug products are said to account for about 60 per cent of Warner-Hudnut sales. Sales abroad totaled $28 million in 1953. Combined sales of both companies total $100 million.

NPC Booklet in Heavy Demand

The booklet, "I Hate to Buy Drugs, But . . . ," published by the National Pharmaceutical Council, has been in such overwhelming demand that three printings totaling 660,000 copies, have failed to keep up with requests. Copies of the booklet were mailed to the country's physicians; pharmacists; drug manufacturers and wholesalers; drug associations; state boards of pharmacy; colleges of pharmacy; opinion-making organizations and science writers. One week after distribution, 20 per cent of the pharmacists asked for additional copies. New York State pharmacists show a 25 per cent return.

One physician wrote for additional copies, saying "one copy won't last long in my reception room." Another physician wrote: "after reading the booklet, I am immediately and enthusiastically placing an order for 100, or whatever quantity you can send me." Another doctor said: "It should be helpful in solving a problem vexing physician and pharmacist alike, and your Council should be congratulated on this publication."

An Indiana drug retailer ordered 11,600 copies and was trying to persuade the 12 independent druggists in the town to do a direct mail campaign to all the 33,000 residents. Another retailer wrote that he planned to reprint the entire booklet in a local newspaper advertisement.

New TB Antibiotic

A new antibiotic for control of tuberculosis was announced last month by Commercial Solvents Corporation and Eli Lilly and Company. The generic name of the drug discovered in screening operations by Commercial Solvents Corporation at Terre Haute, Indiana, is cycloserine. The drug is to be marketed under the trade name of Seromycin by Eli Lilly and Company who have been very active in the development of clinical application of the product.

Clinical findings on the drug were presented by Dr. Israel G. Epstein, Associate Professor of Medicine at the New York Medical College, and Dr. Henry Welch, chief of the Antibiotic Division of the Food and Drug Administration, at the annual Veteran's Administration —Army, Navy Conference on the Chemotherapy of Tuberculosis held last month at Atlanta. Dr. Arthur M. Walker, secretary of the conference and of the Committee on the Chemotherapy of tuberculosis of the Veterans Administration, said the drug had "sufficiently impressed" the administration to deserve a further "randomized study." Beginning March 1, at least 200 veterans in five administration hospitals are receiving one gram of the drug a day in a controlled six months study, he said. The drug is taken by mouth, one capsule, four times a day.

We are informed that the patent situation on this drug is not clear. We are told that another company has patent claims on the same thing. This company is said to have discovered the drug a few years ago, made publication, and was granted patent claims.

Two More Fair Trade Acts Invalid

The Arkansas Supreme Court has held the fair trade act of that state unconstitutional because of its non-signer clause. However, the court said it was not attempting to rule on the probable constitutionality of the law if the non-signer clause was eliminated. But so far as this is concerned, the act is of practically no value to this industry without the non-signer clause. The court action involved price-cutting on the automobile anti-freeze, Prestone. The manufacturer, Union Carbide & Carbon Corporation, based its suit for injunction on a written contract with one Arkansas retailer (not the one being sued). The court said its ruling was based on the section of the U. S. Constitution which says no one shall be deprived of property without due process of law. The court said that the right of the defendant retailer to sell at a reduced price was a "valuable property right." The court noted that the highest courts of 17 states have held their respective fair trade acts valid although they contained non-signer sections similar to the one in the Arkansas law, but added, "we can only say that we have carefully considered each of the decisions and remained unconvinced."

The vagaries of the legal mind are difficult to follow. Here we have a state supreme court ruling that a provision of a state act is unconstitutional because it violates the U. S. Constitution, while the U. S. Supreme Court finds no such violation with the same U. S. Constitution.

The Nebraska Supreme Court has also declared the fair trade act of that state unconstitutional on the basis of its non-signer clause. The high court upheld a decision of the Douglas County district court in a suit brought by McGraw Electric Company against the Lewis & Smith Drug Company, Omaha. Sunbeam Corporation had filed a brief in the case as a friend of the court saying that it was "vitally interested in upholding the Nebraska fair trade act." The ruling also covered a similar suit brought by General Company against J. L. Brandeis & Sons, Omaha.

These decisions bring to six the total number of states in which the fair trade acts have been rejected by the courts, either completely, or as regards the non-signer provision. Rejection of the non-signer provision makes the law practically useless. These six states are: Arkan-

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* *Chemical Senses, page 1, Moncrief—lists senses as follows: " sight, hearing, touch, taste, smell." Note smell is listed Fifth.*

sas, Florida, Michigan, Nebraska, Tennessee, and Utah. Since there are no fair trade acts in the States of Missouri, Texas, and Vermont, and in the District of Columbia, there remain only 39 states in which complete control of pricing through fair trade is possible.

Fight Vitamin Food Classification

A tax bill for the District of Columbia which became effective last August 1, classifies vitamins as foods and makes them subject to a one per cent sales tax. Five pharmacies in the District have recently challenged the legality of this sales tax on vitamins claiming that they are medicines and therefore should be exempt from ant tax on foods.

Pre-shaves Exempt from Tax

Creams or lotions intended solely for use in softening or lubricating the beard preparatory to shaving with either a blade razor or an electric razor, are not subject to the 10 per cent retail excise tax, according to a ruling by the Internal Revenue Service. However, if exemption from such tax is desired, manufacturers must refrain from including in the labeling of the product any claims concerning the use of the product as an after-shave cream or lotion, or as a skin conditioner.

Cutting Fair Trade Prices

More retailers now exercise their "time-honored" right to cut prices to meet competition in fair-traded merchandise when manufacturers are incapable or unwilling to enforce fair trade contracts, according to William Burston, manager, merchandising division, National Retail Dry Goods Association.

"It is evident each day that more and more retailers across the country are now exercising their time-honored right to meet competition, fair trade law or no," said Mr. Burston. "Each continues to act individually. None wishes to break the law but none will permit competition to undersell him just because there is a law. They are taking legal steps to protect themselves in case they should be sued under the law."

Steps taken include giving manufacturers formal notice of violations, waiting a reasonable length of time for the manufacturer to take action to end violations, and then cutting prices to meet competition when they are convinced that manufacturers "cannot or will not" abide by their agreements, he explained.

Dr. Durrett Advanced

Many in this industry recall the days when Dr. James J. Durrett was active in government agencies controlling the products of this industry. Dr. Durrett first caused this industry many headaches when he was chief of drug control of the Food and Drug Administration. He resigned from that position to become associated with E. R. Squibb & Sons, but later returned to the FDA. Some time later he again resigned from the FDA, but then he became medical advisor to the Federal Trade Commission and continued to cause this industry great trouble. Finally he left the government to become Dean of the Medical College of the State of Alabama. We note that early this year that he has been replaced as Dean, and is named consultant to the president of the college on medical center development.

Cannot Feed Gorillas

One of the troubles with people is that they just don't know how to feed gorillas, says the American Medical Association. An autopsy report made on Bushman, Chicago's giant gorilla who died suddenly in 1951, shows that Bushman probably died as a result of a nutritional defect. Furthermore, like all other gorillas in captivity, Bushman never became able to father offspring. The trouble is that unless someone can find out what mysterious nutritional element is needed for gorillas, they won't be able to reproduce in captivity and the species may die out. This will leave scientists without a valuable animal for study, according to doctors writing in Archives of Pathology.

A husky 38 pounds when he arrived in Chicago in 1930, Bushman reached 550 pounds and six feet, two inches when he was 21 years old. He daily ate 22 pounds of fresh fruit, vegetables, and whole wheat raisin bread, plus three quarts of milk. Some of his troubles appeared to be very like those of ordinary human beings. He had some hardening of the arteries in the brain and spinal cord, and a bit of kidney trouble. Part of this appeared to be the result of aging, but he definitely was not senile. His heart trouble was like that of men suffering from beriberi. He also had a gum infection and a cavity in one tooth.

The doctors said they just don't know what Bushman was lacking in his diet. One of the mysteries about gorillas is that they thrive in two areas in Africa, one in the mountains and the other in the lowlands, but not in the area between, which outwardly appears similar in character. Another problem is that chimpanzees, orangutans, and gibbons reproduce in captivity, but gorillas never have. Only a few hundred of the mountain type and a few thousand of the lowland or Bushman type still survive.

Antidote Table Problem Solved

The controversy over the inclusion of a table of antidotes for poisons in the National Formulary has been settled. The Council of the American Pharmaceutical Association voted last month to issue such a table to be prepared by a special committee (not the Committee on National Formulary) for distribution to all purchasers of National Formulary X. This table is not to be bound with the pages of the National Formulary, but will be distributed as a separate pamphlet with each copy of the National Formulary X.

The purpose of compiling such a table is that it will be available as a basis for information for emergencies, and to make it constantly and readily available in the pharmacies of the United States. The original proposal was that the table be part of the National Formulary, but legal and other considerations made such an inclusion of the table in the National Formulary undesirable.

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FTC Won't Act in Fair Trade

The Federal Trade Commission has ruled that manufacturers who enforce fair trade price minimums against one class of retailers, but fail to action against another class of retailers, are not engaged in unfair methods of competition in violation of the Federal Trade Commission Act. The ruling was made in denial by the Commission of an application for a Commission investigation into resale price agreement enforcement practices of certain unnamed manufacturers in the jewelry industry. Retailers charged that certain manufacturers were using retail jewelers as a "show case stimulus to the business of discount houses" by forcing jewelers to hold to fair trade prices while allowing or encouraging discount houses to undercut fair trade prices.

"Assuming the truth of applicants' allegations that no injunctive relief against price cutters has been forth coming from the manufacturers," the Commission said, "it is clear that applicants may resort to various avenues of self-help to correct the conditions of which they complain." Specifically, the Commission asserted, under the state fair trade laws, fair-trading retailers may sue for injunctive relief against price-cutting discount houses, or they may themselves disregard the resale prices fixed by the manufacturers and compete on a price basis with the discount houses. The Commission pointed out:

"The decisions of state courts under the fair trade acts make it clear that where a manufacturer discriminates in the enforcement of his resale prices among competing customers, or fails to display reasonable diligence in enforcement, or neglects entirely to enforce, that fact constitutes an adequate defense in a later enforcement proceeding by the manufacturer against a price-cutting seller. Thus, a retailer forced to cut prices to compete, under conditions here alleged, could do so with impunity."

The application had contended that price competition was not an appropriate remedy since a retailer should not himself be required to adopt a practice which he is under moral obligation not to employ, in order to obtain an equal footing with a favored competitor. To this, the Commission commented, it cannot seriously be suggested that price competition is morally reprehensible."

The role of the Commission under the fair trade laws was clarified by the ruling. The Commission stated: "The authority of the Federal Trade Commission under fair trade is sharply circumscribed by the provisions of the McGuire Act. The Act does not impose on the Commission any affirmative regulatory duties; it does not in terms prohibit any practice nor require the Commission to take corrective action towards proscribed activities. The Act is exemptive and permissive. It specifies the conditions under which fair trade pricing and the rights of action created by state fair trade laws are exempt from the Federal antitrust laws.

"The Commission has consistently taken the position that it is not within the province of the Federal Trade Commission to exercise control over resale price agreements not to enforce such agreements. Where resale price agreements are lawful under applicable state law, the Commission understands the McGuire Act as barring antitrust authorities from concerning themselves with the rights and obligations brought into existence by those agreements. Enforcement has been left exclusively to private litigation."

The Commission agreed, however, that "the withdrawal from the area of lawful fair trade should not be given too broad a connotation," pointing out that where the practice is not "lawful" or it is an integral part of a greater trade restraint it may be attacked under the Federal antiturst laws. The Commission concluded:

"The Federal Trade Commission must act in the public interest, to affirm, wherever possible, the basic competitive rationale of our free enterprise economic system. The Commission believes that the applicants here, through their own lawful efforts, may obtain the relief desired. In the absence of a showing that circumstances foreclose such efforts, the Commission cannot invoke antitrust sanctions in support of aggrieved applicants reluctant to effect that measure of self-help which would alleviate their conditions.

All of which seems to indicate that the Federal Trade Commission is not going to get involved in the fair trade situation. It will be recalled that for many years the FTC was openly opposed to fair trade and made no secret of it. They clearly indicated that they would take steps which, at the time, appeared detrimental to fair trade. Furthermore, the Commission recently involved itself in the case of the Eastman Kodak Company with reference to the right of that company to fair trade certain of its products while operating direct retail outlets in which these products were offered for sale.

Doan's Pills Ad Claims

Foster-Milborn Co. has agreed not to advertise Doan's Pills as a cure for any diseases or disorders of the kidneys or bladder, according to the Federal Trade Commission. The agreement also provides that after certain changes in the Formula, Doan's Pills can be advertised as an aid in the relief of backaches, headaches, dizziness, muscular aches and pains resulting from the strains of active life and emotional upsets. Also permitted under the new formula will be representations of aid in relieving mild bladder irritations due to unwise eating habits. The new formula calls for an increase in two of the active ingredients to provide for greater daily doses when taken as directed.

Stannous Fluoride in Dentifrice

Still another ingredient for control of dental caries, or tooth decay, is making its appearance in a tooth paste. The new ingredient is not one that should greatly surprise anyone as it is a fluoride, and there certainly has been widespread publicity over many years concerning the beneficial effects of fluorides on the teeth.

But Procter & Gamble are the first to employ a fluoride as an ingredient of a tooth paste freely available to the public. The tooth paste is called Crest, and it contains stannous fluoride. P. & G. says that the product will bring the advantages of fluoride to the teeth of older children and adults. The product is based on several years of research, says the company, not in their own laboratories, but under grants to university research laboratories where clinical tests have been conducted

over a period of two years. "For example, clinical tests conducted on more than 3,000 adults and children have been conducted in the School of Dentistry of the University of Indiana, where results show that use of the new tooth paste definitely and substantially reduces tooth decay."

P. & G. claim that stannous fluoride is "far superior" to sodium fluoride, when applied directly to the teeth by dentists, in making the enamel of the teeth decay-resisting. Also, it is claimed that stannous fluoride applied to the outside of the teeth by use of the tooth paste, is effective on the teeth of adults as well as children, whereas fluorination of water affects only the teeth of young children.

P. & G. researchers point out that three main methods have been employed to prevent tooth decay. One is removal of food particles by brushing the teeth after each meal or each between-meals snack. However, they say, this is not always practical. A second method is to attempt to destroy the bacteria in the mouth. This has not proved very successful, they say, because it is practically impossible to destroy all the bacteria, and the remaining ones multiply rapidly. The third method is to strengthen the enamel of the teeth so that the bacteria and acids in the mouth simply do not cause decay. This is the approach used by the fluoride-containing tooth paste.

Pharmaceutical Council Members

Membership in the National Pharmaceutical Council now totals eighteen. The members are: Abbott Laboratories, American Home Products Corporation, The Ames Company, Ciba Pharmaceutical Products, Inc., Hoffmann-La Roche, Lederle Laboratories Division, McNeil Laboratories, Mead Johnson & Company, The Wm. S. Merrell Company, Chas. Pfizer & Co. (J. B. Roerig & Co.), G. D. Searle & Co., Smith, Kline & French Laboratories, E. R. Squibb & Sons, The Upjohn Company, Warner-Chilcott Laboratories, White Laboratories, and Winthrop-Stearns, Inc.

Outline for Committee on FDA

The 14 member citizen's advisory committee, recently appointed by Secretary of Health, Education and Welfare, Oveta Culp Hobby, has adopted a seven-point program for evaluating the operations of the Food and Drug Administration. At its first meeting in Washington last month, the scope of the committee's program was outlined as follows:

To review and appraise the operations of FDA at headquarters and in the field with reference to its enforcement and certification programs.

To evaluate present enforcement policies and to ascertain whether the best possible balance is achieved between adequate protection to the public and the removal of unnecessary obstacles to business.

To determine whether the level of enforcement activities is appropriate and adequate for needed public protection, including the determination of estimated requirements for future needs.

To determine whether proper priority is being given to enforcement problems.

To review and appraise the character and adequacy of inspection and enforcement machinery in the light of rapid changes in recent years in food processing and drug and cosmetic development.

To appraise the effectiveness of working arrangements with states and other governmental and private organizations.

To study the relations of FDA to Congress and to the public.

Commercial Solvents Quits Finished Drugs

Commercial Solvents Corporation has sold its line of packaged pharmaceuticals to Reed & Carnrick and will confine its efforts in the drug industry to being a bulk supplier to other companies. CSA Pharmaceuticals, a department of the company's biochemicals division was discontinued as of February 1, and its sales staff was integrated into other departments or relocated with other firms. Reed & Carnrick is a division of Corega Chemical Company, which is a subsidiary of the Block Drug Company.

Find Boric Acid Powder Safe

Four Maryland scientists have reported (Journal, American Medical Association February 5), after a year's study of the use of dusting powders containing five per cent of boric acid, that such powders are safe for infants. The investigators studied the clinical condition and the blood chemistry of some 60 babies who were repeatedly dusted with commercial baby talcum powder and "failed to show any significant increase in boric acid content in the blood at any time during the period of one year. The report, entitled Boron Absorption from Borated Talc, emanated from the Division of Legal Medicine, University of Maryland Medical School; the Office of the Chief Medical Examiner of Maryland; and the Department of Mental Hygiene, State of Maryland.

Boom in Trading Stamps

The use of trading stamps by retail merchants is rising to new high levels throughout the country as competition for customers increases. More and more retailers of widely divergent types of goods are joining the ranks of those who give these stamps to buyers in their stores. Now Sears, Roebuck & Company are in the trading stamp business. They do not give stamps to their customers, but they supply stamps to other retail merchants to distribute to their customers. The Sears stamps are different in they are redeemable either in merchandise or cash at the Sears stores. Sears stamps are distributed by retailers to customers on the basis of one stamp for each 25 cents spent. The stamps are worth one-half cent each to the customer who receives them. If a customer has 200 such stamps he can go to a Sears store and obtain one dollar in cash for them. In addition to any profit to Sears involved in the transaction of selling the stamps to retailers and then redeeming them, Sears increases its store traffic by having the people come into their s tores to redeem the stamps.

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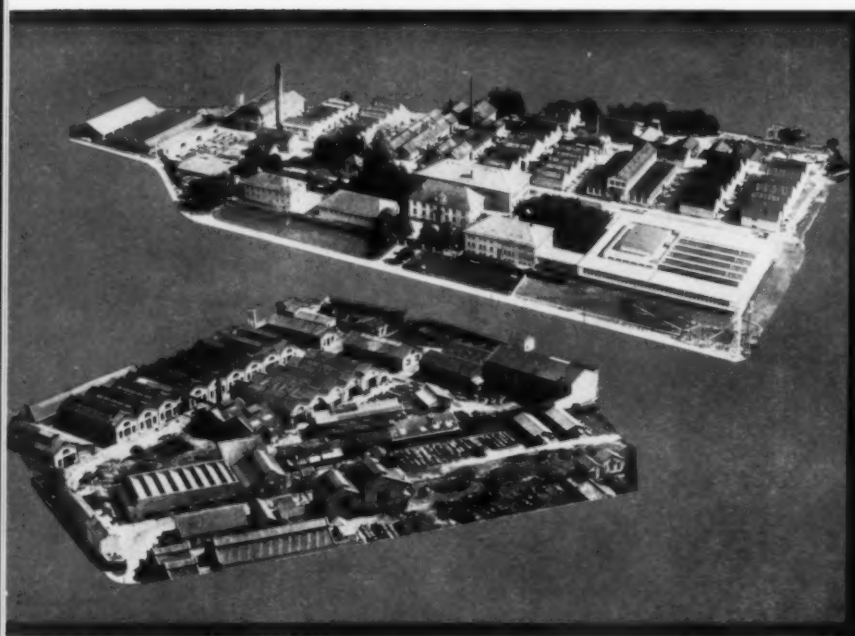

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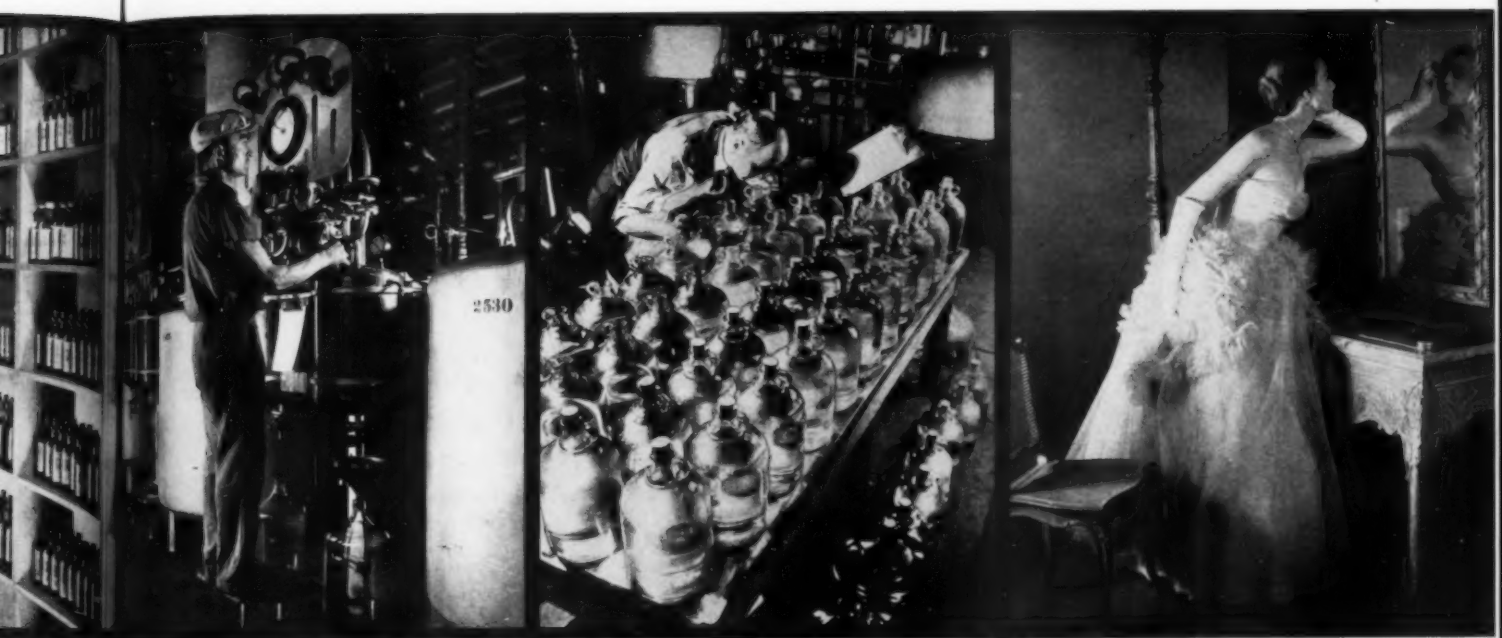

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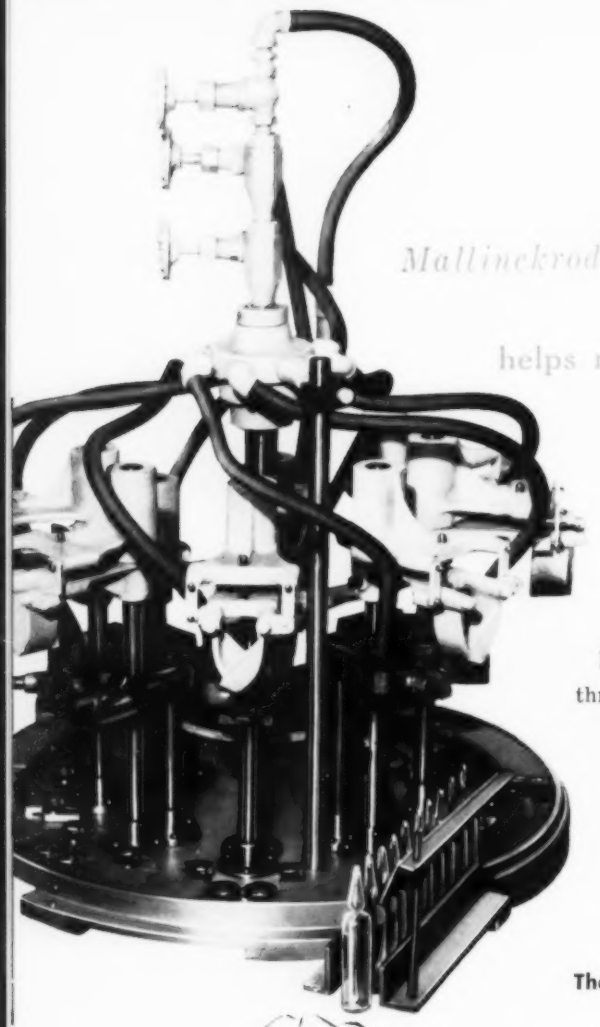

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The search for Drugs

The intensity of research in the pharmaceutical industry today poses many problems which are most difficult of solution. As an example, it is freely admitted that leading companies with extremely large research staffs are only able to "skim the surface" in the search for new and better therapeutic agents. An outstanding problem facing research staffs is what avenue of approach to follow. Shall the road followed be to find a drug for control of a specific disease? If so, shall the search be based on results obtained by existing products in an attempt to improve on these products and thus displace them? Or shall the search be for an entirely new type of product probably for a disease that thus far has been uncontrollable? And if an entirely new type of product is to be sought, where shall the search begin—are there any clues to a start?

Aside from these most difficult methods of procedure, there is the method of attempting to come up with new forms of existing drugs, such as antibiotics, antihistaminics, hormones, and others, in the hope that they might prove especially effective in any of one or more diseases. In these instances, there is generally no clue as to just what important use, if any, will be found for the product, and therefore much experimenting must be done with the product in an attempt to uncover some indicated use, although none might exist.

Ofttimes, products are discovered, and then, after searches for uses for them have resulted in failure, they are abandoned. However, these products have probably been patented, at least as new compounds. At a later date, it is possible for a research team of another company to come up with the same compound, completely unaware that it had been discovered previously and that publication of this fact was made. The terrific mass of technical literature published today makes it just about impossible for anyone to be completely certain that a complete search has been made. Therefore, a group discovering a product that had previously been discovered and abandoned, might have trials conducted and find a real use for the product in control of one or more diseases before becoming aware that the product is the subject of a patent of a competitor.

This is one of the risks involved in a soil-screening program for the discovery of new antibiotics. Probably the greatest amount of time wasted in such a program is the repeated rediscovery of already known antibiotics. However, if the products turned up are antibiotics which are on the market, they are generally recognized before it is too late. But in the case of antibiotics which have been discovered and are as yet not well known on the market, or which have been abandoned, a company rediscovering them might experience a serious loss in development of the product.

Naturally, most of the research is conducted along the lines of searching in known fields for new products. Thus the antibiotics, the antihistaminics, the steroid hormones, the botanicals, and the biologicals are constantly being explored. But the great difference which exists between all these classes of remedial agents makes it just about impossible for one company to assemble and maintain a research staff that can constantly be on top in all of these fields.

However, there can be no question that the techniques involved in many of these fields are now quite widely known. Originally, for example, the very complicated methods of synthesizing the steroid hormones were confined to one company. However, methods of making these products from other starting materials which provided short-cuts in their synthesis, and even with the most effective use of fermentation methods, have made the production of these products become almost commonplace. But, at the same time, we do not see any steroid hormone products being developed that represent very marked advances over the original cortisone and ACTH, and we have seen numerous failures. Surely, in the steroid hormone field there must be real superior products available. However, research has not

(Continued on page 418)

Words that Work*

by Francis Chilson, INDUSTRIAL CONSULTANT

Much is being said and written these days, about the universal lack of adequate communication. In my experience and observation, it is not that we lack communication *per se*, but that we have too damn much of it. The Spaniards have a saying they apply to a man who talks too much and says too little: "Palaverous, Palaverous, Palaverous"—Words! Words! Words!

We are all guilty of trying to communicate too much while communing too little with ourselves before attempting to transmit our messages or our ideas to unreceptive minds. We do not mentally digest our material before attempting to feed it to others. I once knew a judge who is famed in the literature of the law for the profound wisdom of his decisions, and who was locally famed for the fact that he had a habit of talking to himself. He was once asked why he did so, and he answered, "I like to talk to a sensible man and I like to hear a sensible man talk." His decisions were thoroughly discussed with himself.

I think Milton stated the position clearly when he said:

> *"Swol'n with the wind,*
> *The rank mist they draw,*
> *The hungry sheep look up,*
> *And are not fed."*

We all are swollen with the rank wind from letters, memoranda and reports; from radio, television; from speeches like this one; from pulpit and platform; from newspapers and all of the other innumerable means of communication. But, in the meantime we, the hungry sheep, look up and are not fed the ideas that we need for direction, information, inspiration and encouragement. We all are floundering in a sea of words "far beyond our depth." We all have to winnow so much chaff to gain so little wheat.

I think I know where the fault lies: we were never taught in grammar school, high school or college the comprehensive and effective use of our beautiful, flexible, pregnant English language.

Some of us can speak the language very well, but we cannot write it worth a damn. Others can write very well and cannot speak worth a damn. I am in the latter category and in consequence you must suffer for it.

Some time ago, a chemist friend of mine, asked me to read a very important and complicated report. That report had an important bearing upon his future with his Company. I waded through the document with the utmost difficulty, and when my friend asked what I thought of it, I said, "I fell off the sled at the first turn. To tell the truth, I am as confused as a little boy who has just lost his chewing gum in the hen house."

Our language is graphic. When Westbrook Pegler described the mob scene in the Brown Hotel in Lexington, Kentucky on Derby Day, he said, "Down the hall you could hear the shrill cackle of a hen who had just stuck her bill in the fourth cocktail;"—his communication couldn't have been more vivid or succinct.

When I was in Chattanooga recently, I asked the cab driver, whom I have known for some years, about the new house detective in the Read House. (It is always important for traveling men to appraise the opposition). The cabby said, "He is a retired policeman, and he is so damn dumb he couldn't track an elephant through the snow and it bleeding." I don't think he needed to use any more words to communicate his conception of the house dick's utter incompetence.

In London recently I made the mistake of assuming that I could stand the pace of one of my young Australian colleagues. It is a mistake no American should make. The following morning I was accused of being shaky. I held out my hand to prove the statement was not true. The Aussie said in typically Australian style, "By God, Frank, you're shivering and shaking like a dog passing razor-blades!" I think the statement communicated the idea vividly, and that is why I am on the wagon now.

I said a moment ago, that ours is a pregnant language. A simple phrase may convey meaning, far beyond its literal context. Thus when a character in Norman Douglas' "SOUTH WIND" says, "There's the Judge. That redhaired man, who limps like Mephistopheles and spits continually," he established in fourteen words the man's educational, economic and social position—

*Delivered at midwestern meeting of American Pharmaceutical Manufacturers Association, February 7-9.

he was a Judge. He also established the fact that the Judge was vulgar because he spat continually, and further he established the fact, that the Judge was a redhaired, *thin* man because no man who has a pronounced limp like the devil is ever fat.

Shakespeare was, of course, master of the pregnant phrase, and when he said, "Multitudinous seas incarnadine," it required no more words to depict the heaving, restless billows of a sunset sea.

Since I must attend many conferences in the course of my work, I am often amazed at my technical associates for their failure to present their ideas briefly, vividly and factually. Consequently, a meeting is often aborted because the ruling powers punch holes in their logic, or ask questions on the facts, which cannot promptly be answered, for the reason that the boys have not adequately communed with themselves before attempting to communicate with others.

It seems an agony for some of them to dictate simple memoranda letters or reports. They hem and haw and seem suddenly affected with post-nasal drip; they repeat and correct themselves and finally must revise their copy thus wasting their own, and their secretary's, time. It must be hell to be a secretary to some men.

Most of us make the mistake of failing to realize, that when we think, our thoughts are clothed in the words of our own vocabularies. But when we communicate our ideas must be translated into words that are in the vocabularies of the persons to whom our communications are addressed. To the extent that we fail in this we fail to communicate. Technical people, particularly chemists, are very apt to make this mistake. We technical people often assume that the persons to whom we must communicate our thoughts know much more than they actually do about our own work. Such an assumption should never be made. No communication, oral or in writing, was ever misunderstood because it was too clear and too simple.

We very often begin our communications in the middle on the assumption that it is unnecessary to make any preliminary statement or to entice the attention of the people to whom our communications are addressed. In communicating with our superior officers we are very apt to forget that such people have in their minds the problems of many phases of our businesses and that our own particular phase is but one piece in the puzzle or one small link in the chain.

It is necessary, therefore, to give a clear brief summary of preliminaries and equally necessary to draw our audience's attention away from the things that are on their minds so that their attention will be concentrated on what we wish to communicate to them.

This is what I meant when I used the phrase, "unreceptive minds." It is important to remember that all but a miniscule fraction of human minds are unreceptive, at least initially, to new ideas. If you are skeptical about this, I suggest that when you return to your offices, ask your bosses for a $500 annual raise.

Minds are unreceptive because they operate like shuttle cocks between attention and inattention. They are bemused with day dreams. They are preoccupied with their own business, family, or social problems. Therefore if your communication is to be received, it must demand attention and concentration.

I should like you to remember that a written communication is infinitely more difficult to register than an oral one. Written communications lack the support of the facial expression of the speaker; they lack the support of intonation and emphasis; they lack the support of bodily gestures, all of which amplify, emphasize and give precision to the meaning of spoken words.

I am speaking, of course, of ordinary communications. Scientific writing on the other hand, since it is addressed to scientists, has the advantage of support

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COURTESY RICHARD HUDNUT

Amides

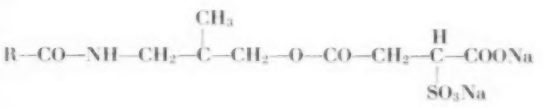
The availability of relatively new and easily handled amines has resulted in the opening of a new classification of commercially available compounds many of which are finding their way into cosmetic formulations. The amidic substances under discussion will be only one category of a much larger number of compounds possible. The alkylol amines which are the basic raw materials used in the synthesis of the amides to be discussed have perhaps contributed to a greater extent than any of the other raw materials.

The presence of both an amino group and an hydroxy grouping in these amino alcohols makes it possible to prepare amides from the higher fatty acids or esters. Both types of reactions have been utilized. In the detergent field particularly, the resultant compounds have been found to be good foam boosters, stabilizers and in themselves detergents with special properties. The best known of these and the most extensively used are the dialkanol-amide condensates. As originally made these compounds were synthesized from two moles of a dialkanolamine and one mole of a fatty acid—usually lauric, by heating at 150°-170° C., and are thought to be a mixture of dialkanolamide of the fatty acid, free fatty acid and free dialkanolamine. However if these compounds are mixed together in the same proportions, the properties of the mixture is not the same, unless it is heated at 130°-140° C. for about one hour. The physical properties are therefore thought to be due to a physical orientation induced by heating. The condensates of this type have found good acceptance in many types of shampoos either by themselves or in conjunction with other detergents. They in themselves are good detergents but they also increase the viscosity of the system into which they are incorporated, making them useful in a dual capacity. Indeed their capacity towards gelation with water addition has been taken advantage of in some shampoo products which were on the market in gel form.

in Cosmetics *by Harry Hilfer*

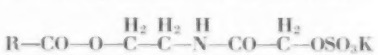
Other detergents made from the alkanolamines include some of the sulfated compounds such as those of the general formula

made by condensing one mole of a fatty acid with one mole of monoethanolamine and then sulfating. This general classification has excellent foaming and detergent properties but is relatively unstable in water, hydrolyzing in somewhat less than the usual shelf life required of cosmetics. Their use in cosmetics is therefor limited unless used in the dry state. There is another form however which is more stable:



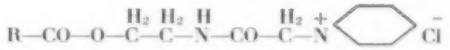
made from the condensation product of one mole of mono isopropanolamine and one mole of a fatty acid and then treated to form the sulfosuccinate. Products of this type particularly the oleic acid derivative have found fairly general usage in bubble bath preparations because of the greater stability of their form. Since there is an ester grouping present however, they tend towards hydrolysis if the medium in which they are used is somewhat alkaline.

The formation of the ester and amidic grouping may be demonstrated by another detergent from



where the fatty acid has been reacted with monoethanolamine to form the ester which is subsequently treated to form the sulfoacetate. This compound differs from most of the other sulfated detergents in forming a potassium salt which is more soluble than the sodium salt.

Much the same structure has been utilized in preparation of a quaternary ammonium compound.



Both these products contain an ester grouping which would hydrolyze readily in an alkaline medium, but they are both characterized by the rather mild reaction to skin irritation tests as compared to most of the other compounds in their respective classifications. These are compounds which are representatives of the use of the alkanolamines in different reactions. Obviously the same synthetic methods are not used in forming the ester as well as the amide.

The reaction products of a monoalkanolamine and a fatty acid, where the amide is formed exhibit some rather interesting properties. They all have higher melting points than do the fatty acids from which they are made. This is particularly true of the ethanolamides. For example the stearic acid derivative has a melting point of about 90° C. as compared to a melting point of 55°-60° C. for the triple pressed stearic acid from which it is made. The compounds made from the lower molecular weight fatty acids (coconut fatty acids, lauric acid) have good foam boosting additive properties in shampoos and though the stearic acid derivatives are not in general commercial use, the combination they offer of a high melting point coupled with a free hydrophilic group would tend to make them possible stiffening agents in some applications where the presence of the hydrophile is also of value.

The oleic acid derivative has also found some value as such in shampoo formulations or an hair conditioner. Though the mechanism of this formation is not clearly understood it has been demonstrated that its presence markedly improves the properties of the hair, insofar

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Dental Caries

During recent years the control of dental caries by medicated dentifrices has been the goal of many industrial laboratories and dental schools. There are more than one dozen organizations which are interested in this goal and each year there are more than one hundred new substances that are found to have potential value for this purpose, as shown by some type of primary screening method. Less than one-tenth of these compounds can be given a practical trial in dentifrice by human subjects in the same period of time. The cost of a clinical study is so great that it is difficult for a company to justify support of a clinical study unless its research director feels practically certain that the outcome of the experiment will be successful. The question for discussion is how much scientific justification a research director can have for his decision to approve a clinical study. What probability does he have of predicting clinical results from laboratory tests? This problem is especially important since it is no longer enough for an organization to find an inhibitor that will have some effect on dental caries. The agent should be better than others on the market, and its superiority must be predicted with a high degree of certainty. The purpose of this presentation is to compare clinical results on dentifrice studies with the predictions that are made from laboratory tests.

Most of the laboratory methods are based on the theory that the acid formed in dental plaques corrodes tooth enamel enough to give dental caries a start. The laboratory procedures generally involve a measurement of the acid that forms when oral bacteria metabolize sugar. The quantity measured may either be the pH change of saliva during incubation with glucose, the titratable acidity or lactic acid formed or the amount of calcium or phosphate that can be dissolved from tooth enamel or hydroxyapatite.[1-2-3-4-5] Other methods make use of certain fractions of saliva or mouth contents, such as salivary sediment[6] or dental plaques[7-8-9] and may even require that a test dentifrice be used by experimental subjects for weeks or months.[10]

The predictive value of any or all of these methods cannot be obtained with any satisfactory degree of certainty, but the fault is not with the laboratory tests.

†Supported by grants from American Chicle Co., Colgate-Palmolive Co., Lambert Pharmacal Co., Lever Brothers Co., Procter & Gamble Co. and the Sugar Research Foundation.

*Reprinted from proceedings of the Scientific Section of the Toilet Goods Association, No. 22, December, 1954.

and Dentifrices[†*]

by R. S. Manly

TUFTS COLLEGE DENTAL SCHOOL, BOSTON, MASS.

There is just not enough information on the clinical effectiveness of agents in dentifrice. About eleven chemicals have been tested accurately for their effect on the dental caries incidence of animals or human subjects. If our knowledge were twice as great, it would be possible to handle this problem statistically, and to determine the correlation coefficient between the findings by each of the laboratory procedures and the findings by clinical studies. We could then rate each laboratory procedure or combination of procedures according to the magnitude of its correlation coefficient and could even determine statistically whether one procedure was significantly better than the others. That is not possible now, but there are certain comparisons which can be made within the limitations of our knowledge at present.

Two types of *in vivo* studies can be used as criteria for judging the merits of laboratory methods. The better of the two criteria is a controlled clinical study involving brushing experiments by matched groups of human subjects who have used dentifrices for a period of a year or more. For this presentation we have selected those which seem to meet modern standards for well controlled clinical experiments, in having sufficient numbers of persons and the proper kinds of controls. A certain number of arbitrary decisions have had to be made, but we believe that other dental investigators would agree to the selection in large part.

The next best criterion is the action of a substance in reducing dental caries among test animals. White rats, cotton rats and hamsters have been used for such studies. Only a few such studies have employed toothbrushing with a dentifrice to evaluate the effect of a chemical. Most investigators have merely introduced the chemical into the diet or drinking water of the animals. Here it is necessary to compromise with the ideal selection and include all suitable experiments without regard to the means of administering the inhibitory agent, otherwise there would be too few studies for consideration.

Several laboratory procedures might be considered if there were sufficient published information on each. Many of the technics have been used by an investigator to demonstrate the merit of a particular class of compounds, and there is no information as to what results would be obtained with all of the agents which have been tried clinically or with animals. There are only

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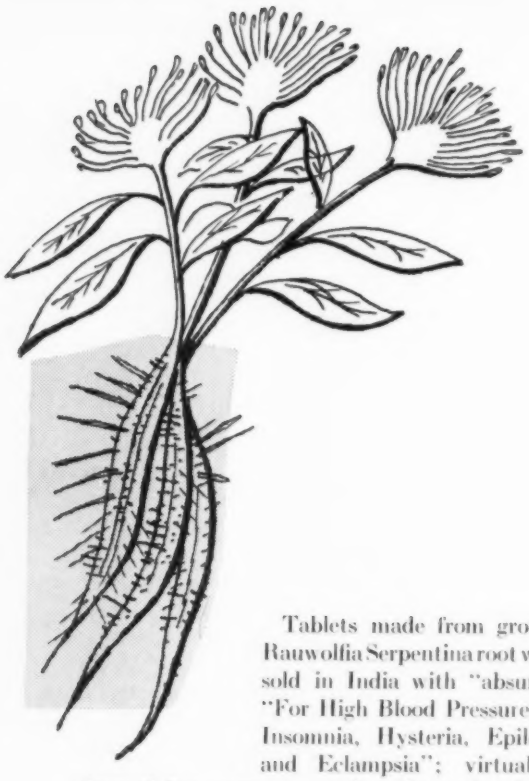
TABLE 1

Animal and Clinical Results Versus Laboratory Predictions

SUBSTANCE	CONCN. IN DENTIFRICE	CLINICAL FINDINGS	ANIMAL TESTS	SALIVA RESULTS	SEDIMENT RESULTS	REFERENCES
Ammonium phosphate	3 per cent	+	0 B	+++++	0	11-16
(with three or 12 per cent urea)	5 per cent	0				
	5 per cent	0				
	5 per cent	+				
Bicarbonate, Na	60 per cent	0			0	17
Chlorophyllin, Cu	0.1		0	+++++	+	18-20
			+++			
Copper sulfate	50		++++	+++++	+++	20-21
(in p. p. m.	25		+++	+++++		
	10		++			
Fluoride, Na	0.15 per cent	0	+++++	+++++	0	22-25
	0.10 per cent	0				
Glyceraldehyde	4		0	+++++	0	26-27
Iodoacetate	0.02		++++	+++++	++++	5,24,28
			+++++			
	0.002		++		+++	
N-Lauroyl sarcosinate	2	+++		+++++	+++	10,29
Penicillin, units per g.	1000	+++	++++B	+++++	+	4,30-34
		+				
		0				
	500		++++	+++++		
Urea	3 per cent	+	0 B	+++++	0	11-16
		0				
		0				
	12 per cent	0			0	
		+				
Vitamin K, Synthetic	0.25		0	+++++	0	35-37
			0			



Reserpine in

Tablets made from ground whole Rauwolfia Serpentina root were widely sold in India with "absurd" claims "For High Blood Pressure, Insanity, Insomnia, Hysteria, Epileptic Fits and Eclampsia"; virtually all of these claims seem now to be substantiated in clinical practice.

Reserpine, a single alkaloid entity isolated from Rauwolfia Serpentina, is largely if not completely responsible for the effectiveness of the whole root. First emphasis was placed upon its action in reducing excessively high blood pressure and it was found to be safe and effective, especially in combination with more drastic agents. Most important, in human beings reserpine reduces blood pressure readings to normal levels and seems to have little effect on normal blood pressure. Its sedative or calming action has thus taken on new meaning and applications of this property were the subject of a conference sponsored by the New York Academy of Sciences, under the co-chairmanship of members of the Ciba Pharmaceutical Products Research Department. The following papers delivered at the Conference indicate the wide-ranging usefulness of this folk-remedy derivative.

Most of the pharmacological actions of reserpine are due to its effects on the central nervous system. The major effects produced by the drug, namely, hypotension, bradycardia, hypothermia, increase in gastrointestinal activity, miosis and general tranquilization, appear to be primarily expressions of a decrease of central sympathetic tone. Recent studies have indicated that this reduction in sympathetic activity may be the result of central blockade of stimuli which normally activate the autonomic regulating centers.

In addition to effects on autonomic activity, new evidence by J. A. Schneider, A. J. Plummer, A. E. Earl and R. Gaunt indicates that reserpine may also influence other aspects of the nervous system. It has been reported, for instance, that the convulsive threshold is reduced by heavy and prolonged administration of the drug. The central effects of reserpine may be more general than previously thought; it probably influences transmission of impulses—though at different dose levels—both in the autonomic and the somatic nervous systems.

Reserpine has also been characterized by comparing its effects with those of other central nervous depressants or stimulants and by determining whether other drugs will antagonize or synergize its actions. This led to no clear-cut picture which allowed reserpine to be classified with any of the known groups of compounds acting on the central nervous system. Such findings indicate further that this alkaloid demonstrates a basically new principle of pharmacological action.

In order to elucidate the sedative reaction of reserpine (Serpasil), F. Rinaldi and E. Himwich made comparative studies with reserpine and some barbiturates.

These results reveal that reserpine does not facilitate sleep because of its power to stimulate the brain stem arousal mechanism. This action is in contrast with that of the barbiturates which depress the brain stem mechanism as part of their sleep producing actions. Furthermore, reserpine, unlike barbiturates, does not modify the electrographic picture evoked in the cerebral cortex by alerting stimuli. This modification is interpreted as a sign of cortical depression exerted by barbiturates and not by reserpine.

Subjects of a study by R. R. Monroe, et. al. were four human patients and two monkeys receiving subcortical electrostimulation for therapeutic reasons.

While under the effects of reserpine the subjects would remain motionless for extended periods with their eyes closed, thus appeared to be asleep. However, electroencephalographic recordings gave evidence only of relaxation with rare short bursts of very light sleep. The clinical difference between this stage, normal sleep, and sleep under sodium amytal was the easy arousability of the patient under reserpine. The electroencephalographic changes that occurred following the intravenous injection of reserpine were characteristic of physiologic states of altered awareness, there being no specific

Psychiatric Treatment

pharmacological effect on the brain as for example, that which appears following the injection of sodium amytal.

In a study of 750 patients either hospitalized or seen in the outpatient department by A. A. Sainz, agitation, irritability, quarrelsomeness, apprehension and over-dependency were the principal complaints in 30 per cent of the hospital patients, and in 65 per cent of the out-patients, depression, negativism, apathy and withdrawal were the principal complaints in eight per cent of the hospitalized patients and 17 per cent of the out-patients, and memory loss, confusion, disorientation and labile emotionality were the only complaints in 52 per cent of the hospitalized and 18 per cent of the out-patients.

Eighty-nine patients, 52 of them women and 37 men ranging in age from 64 to 92 years were selected on the basis of the prominence of their symptoms. Reserpine was administered orally whenever possible, dosage ranging from 3 mgs. to 130 mgs. daily. Whenever oral administration was not possible, or immediate results were desired, i.v. administration was used, at doses ranging from 5 mgs. to 15 mgs. per injection.

Agitation, irritability and quarrelsomeness disappeared uniformly in from six to 24 hours on the average, and remained controlled during the testing periods of from one to six months. Fearfulness and anxiety responded less well but showed definite and significant amelioration. Although superficially the patients appeared more depressed due to the action of reserpine, the fearfulness and hopelessness of depressions was improved.

Reserpine shows an extremely beneficial effect in senile and arteriosclerotic psychiatric conditions. It tends to decrease the emotional response to stimuli, thereby decreasing or eliminating agitation, and permitting an adequate adjustment to environmental and physical stresses. Even in extreme cases it provides emotional insulation and general sedation without interfering with apperceptive formations, thus promoting great manageability in these patients. In the depressed and negativistic group it tends to decrease these symptoms.

With respect to the 63 patients treated in the hospital, the man-hours spent by psychiatric aides, nurses and doctors in their care decreased an average of 50 per cent.

One hundred twenty-seven patients hospitalized with chronic schizophrenic reactions were treated with reserpine for one to eight months by L. E. Hollister et. al. The majority of these patients had been ill for nine years or more.

In 98 patients significant improvement was noted, this being moderate to marked in 58. Twenty patients could be granted passes from the hospital; five were discharged. Improvement was characterized by decreased tension, hostility, aggressiveness, delusions, and hal-

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LIPSTICKS

CONDENSED FROM A FORTHCOMING BOOK

by Wm. R. Keithler

Certainly, no other product designed for the beautification of milady has survived the many seasonal fashions as has the lipstick. Through the years, lipstick has gained recognition as one of the few indispensable cosmetics in a woman's handbag or on her dresser.

Lipstick formulation and manufacture are by no means simple. On the contrary, it requires a competent chemist, possessing a good deal of wax experience, to formulate and place into production a good lipstick. As illustrated by the desirable and undesirable characteristics of a finished lipstick, many manufacturers have deemed it wise to buy pre-packaged products from contract producers rather than strive to perfect and manufacture their own formulation.

The good lipstick must possess a certain maximum a minimum of thixotrophy; that is, it must soften enough so as to yield a smooth, even application with the minimum of pressure. It must be durable in that women do not like to apply a lipstick every two or three hours. This durability must last at the very least four hours, and preferably five or six hours. Another meaning can be taken for the word durability; and, in most respects, it is just as important. The applied film, no matter how thin, must, at least to some extent, be impervious to the mild abrasion encountered during eating, drinking, or smoking. The lipstick should be of such composition as to color only that portion of the lip to which it is applied and not bleed or streak into the surrounding tissues of the mouth, thus giving the effect of smearing. It must be quickly and easily applied, as a woman does not wish to spend twenty minutes applying her lipstick; and, finally, the perfume must be considered. The most suitable lipstick perfumes are not perfumes at all, but flavors. The majority of perfumes render unto the lipstick an unpleasant taste; and, since the product is, in most cases, used only on the lips, and since the wearer might occasionally lick her lips, thus tasting the lipstick, the flavors are used in preference to perfumes. These flavors are usually one of two types, either strawberry or raspberry. The latter is encountered most frequently.

Color in lipsticks is produced either by the use of insoluble lakes or certain oil soluble dyes of the eosin group, or both. The following list comprises the great majority of the dyes and pigments used in lipstick manufacture:

REDS:

- D and C Red No. 1
- D and C Red No. 7
- D and C Red No. 7 Ca Lake
- D and C Red No. 8
- D and C Red No. 8 Na Lake
- D and C Red No. 9
- D and C Red No. 9 Ba Lake
- Ext. D and C Red No. 9 Ca Lake
- D and C Red No. 10 Na Lake
- D and C Red No. 11 Ca Lake
- D and C Red No. 12
- D and C Red No. 12 Ba Lake
- D and C Red No. 13
- D and C Red No. 13 Sr Lake
- D and C Red No. 17
- D and C Red No. 19
- D and C Red No. 19 Al Lake
- D and C Red No. 22
- D and C Red No. 31 Ca Lake
- D and C Red No. 34 Ca Lake
- D and C Red No. 35
- D and C Red No. 35 Ba Sulfate Lake
- D and C Red No. 36 Ba Sulfate Lake
- C and C Red No. 37

ORANGES:

- D and C Orange No. 3 Ba Lake
- D and C Orange No. 4 Ba Lake
- D and C Orange No. 15 Ca Lake
- D and C Orange No. 17 Ba Sulfate Lake

YELLOWS:

- D and C Yellow No. 5 Ba Lake
- D and C Yellow No. 11

BROMO (Indelibility):

- D and C Orange No. 5
- D and C Red No. 21
- D and C Red No. 24

This list comprises enough of a variety of colors to allow the chemist to formulate any shade desired. It might be stated here that the list is also applicable to the formulation of rouges, as much the same color is desired in this product as in lipsticks. The bromo acids are used to produce indelibility in the applied film. From one to five per cent of these dyes is used in lipsticks; but, ordinarily, two or three per cent is adequate. The various other pigments are used in concentrations ranging from five to 15 per cent, while 10 per cent is the happy medium. The bromo acids, as they are called, are bromine derivatives of fluorescein and are most important in lipstick formulation, for the majority of women, at least at the present time, prefer a lipstick that is indelible. There are two of these compounds that are used most generally, the di and the tetra bromo fluorescein. The di compound produces a yellow-red color, while the tetra compound will give a more purple stain. Usually, the two are used in combination with

COURTESY COTY

each other, as neither will produce the desired results when used separately.

In formulating a lipstick, the primary problem is to find a suitable bromo acid solvent. For the most part, either castor oil or butyl stearate is employed for this purpose as well as some of the higher alcohols and fatty acid glycols. In general, many of the fatty acid derivatives of the monohydric alcohols, such as isopropyl myristate and isopropyl palmitate, are useful as bromo solvents and also excellent agents to employ for lowering the viscosity of the applied film.

It is possible to formulate very simple lipsticks, as exemplified by a stick composed of castor oil, beeswax, and color; but it takes a complex mixture of various oils and waxes to formulate a product meeting all of the specifications set forth at the beginning of this chapter. Each raw material in the formula has its own particular job to do; and, without that specific ingredient, one of those desired characteristics will be missing. It is therefore necessary for the chemist to know exactly what effect the addition of each ingredient will have on the finished lipstick.

The raw materials used in lipstick manufacture vary considerably depending upon the characteristics desired in the molded stick and also the applied film. It is difficult to set forth into the formulation of this product, as there are so very many properties that can or cannot be added to a finished stick. A few of the various types of formulations are given; however, it is up to the chemist to know the action of all of the raw materials and thus be able to rearrange any of these formulae to suit his individual needs.

A highly refined grade of castor oil is one of the most common ingredients in a lipstick. It is used primarily because it imparts an inherent viscosity to the molded stick, and secondarily, because it exerts some small solvent action on bromo acids. There are better bromo acid solvents. It is recommended that castor oil should not be used in excess of 10 per cent with an absolute maximum set at 50 per cent, as large quantities of this material tend to leave a heavy, greasy film on application. As previously indicated, castor oil is not an exceptional bromo acid solvent, actually dissolving less than 0.3 per cent. This small solvent action is due to the presence of free hydroxyl groups in the glycerides of ricinoleic acid, which makes up a large percentage of castor oil.

(Continued on page 425)

Stereoisomers of cinnamic aldehyde

Cis-benzylidene acetone and cis-cinnamic aldehyde have been prepared in the pure state. These compounds are unstable and their synthesis was difficult. They are distinguished from the trans-isomers by their lower boiling points and the melting points of their derivatives. On the other hand, there were no differences in odor between these cis-carbonyl compounds and their trans-isomers.

COURTESY COLGATE-PALMOLIVE CO.

Cinnamic aldehyde is a compound frequently used in perfumery and flavors. The commercial product, either natural or synthetic, is the trans-stereoisomer. Although direction for the preparation of the cis-form have been given,[1] no chemist has previously prepared this isomer in the pure state.

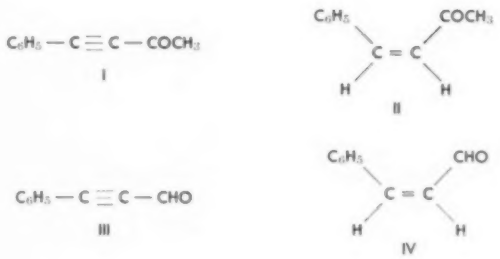
Searching the literature for examples of unsaturated α,β-aldehydes in the cis-form, little is to be found. Only the two natural products Citral and Farnesal, both known in their stereoisomeric forms, are described. However, these two substances, by their terpene nature, present a special case: they possess a methyl group in the β-position to the functional group, which confers a certain stability on the conjugated system. On the other hand, there is not known any representative with an unbranched chain near the double bond. Nevertheless, the recent literature mentions two attempts to synthesize aldehydes of such a structure, viz. cis-crotonaldehyde[2] and 2(cis)-6(cis)-nonadien-1-ol,[3] but these attempts completely failed.

With the α,β-unsaturated methyl ketones the data as to the cis-isomers are rare and partly contradictory.

We have been working for some time in this little known area. This subject was also interesting to us because of the importance of geometric isomerism in the chemistry of irones. Our researches in this direction started with the study of two methyl ketones, the 3-decen-2-one and the 3-hepten-2-one,[4] the cis-stereoisomers of which could be prepared in the pure state. Later we attempted the synthesis of the cis-stereoisomers of benzylidene acetone and of cinnamic aldehyde.[5] For this purpose, we used the general method which consists of a partial hydrogenation of the corresponding acetylenic compounds. On paper, this seems to be very simple. Actually, difficulties are encountered when the triple bond to be reduced is conjugated with a carbonyl group, as we noted during the synthesis of cis-3-decen-2-one and cis-3-hepten-2-one. Since the cis-compounds are unstable in presence of metallic catalysts, the hydrogenation has to be conducted rapidly enough as to avoid, as far as possible, isomerisation of cis into trans during the reduction itself.

This can be done by the use of a large quantity of catalyst. Two to 3 g. of 4-phenyl-3-buten-2-one (I)[6] are

and benzylidene acetone *by H. Schinz*



thus reduced in the presence of 0,8-1,2 g. (about 35 per cent) of Pd-$CaCO_3$ (five per cent) during 30 to 40 minutes. Under these conditions, which almost correspond to those used for the preparation of decenone and hepienone, a pure cis-benzylidene acetone (II) has been obtained.

Hydrogenation of phenyl propargyl aldehydes (III)[7] into cis-cinnamic aldehyde (IV) is still more difficult. These two substances resinify easily and the resins inactivate the catalyst, so that the reaction slows down or even stops before the necessary quantity of hydrogen has been absorbed. To overcome this, a very large excess of catalyst has to be used. We succeeded by using 350 per cent of the Pd-$CaCO_3$ (eight per cent) catalyst. Even under these conditions, the formation of resin and considerable slowing of the reaction could not be avoided. The aldehyde obtained contained some of the trans-form, as prolonged contact with the catalyst caused partial isomerisation. The boiling points of the two stereoisomers being rather different from one another, the pure cis-aldehyde is isolated by careful fractional distillation.

In view of the instability of these substances, several precautions have to be taken: the distillations are done in a vacuum of $\lesssim 1$ mm, in a current of nitrogen and protected from light; the aldehydes are stabilized by addition of 0.2 per cent of hydroquinone, and all manipulations have to be done rapidly.

The cis-benzylidene acetone and the cis-cinnamic aldehyde have been characterized by their physical data and crystallized derivatives. It is especially surprising the boiling points are 12-15° lower than those of the corresponding trans-compounds. In the ultraviolet absorption spectrum, a slightly hypsochromic effect and a diminution of the maximum extinction coefficients is to be noted on passing from the trans compounds to the cis-compounds.

The cis-compounds are very sensitive to acids, by which they are rapidly converted to trans-isomers. By preparing the 2,4-dinitrophenylhydrazone with a methanolic solution of hydrochloric acid and 2,4-dinitrophenylhydrazine or the semicarbazone with the usual solution of semicarbazide-acetate, the trans-derivatives are obtained. Cis-semicarbazones are only obtained by means of a solution of the free base of semicarbazide. The derivatives prepared in this way differ distinctly from those of the trans-isomers. Analogously, the cis-phenylsemicarbazones are formed by contact with a hot methanolic solution of free phenylsemicarbazide. With this reagent, only the aldehyde gives a normal derivative while the ketone, by addition of a second molecule of phenylsemicarbazide to the double bond, furnishes phenylsemicarbazidophenylsemicarbazone.

The physical data and the melting points of the derivatives of the cis-compounds II and IV have been compared with those of the corresponding trans-isomers V and VI (see table). The trans-benzylidene acetone has been prepared according to literature.[8] The cinnamic aldehyde is a commercial product purified by distillation. The infra-red absorption spectra which cannot be reproduced here, also show clear differences.

Table

trans-benzylidene acetone	cis-benzylidene acetone
solid, m.p. 41-42°	liquid, mp. −21,5 to −20,5°
	d_4^{20} = 1,0152; n_D^{20} = 1,5649
	RM_D found 46,90*; EM_D = +2,58
b.p.$_{0,2}$ = 83°	b.p. $_{0,2}$ = 67-68°
λ_{max} 288 m μ, log e = 4,34	λ_{max} 280 m μ, log e = 4,0
λ_{max} 222 m μ, log e = 4,02	abs. term. 220 m μ, log e = 4,0
Semicarbazone m.p. 184° normal phenylsemicarbazone m.p. 193	Semicarbazone 177,5° phenylsemicarbazido-phenylsemicarbazone m.p. 193°

*RM_D calculated for $C_{10}H_{10}O$ F_s 44,32

(Continued on page 417)

COURTESY STANDARD OIL CO. OF N. J.

the SUNTAN

part five role and future

History records cyclic eras of mass sun-worship. The Assyrians, the Persians, the Egyptians and the Phoenicians all reverenced the sun as a deity at one time or another in the distant past. The Aztec Indians and certain other races, far removed from the Mediterranean basin, also engaged in some sort of sun-cult. Apparently, in the early dawn of civilization, the sun was sufficiently impressive as to assume the role of a supernatural force and was regarded as such by peoples residing in those areas where powerful solar radiation was present during most of the year. At a later date, the Greeks and Romans during the zenith of their culture, were also ardent devotees of the sun but not with a religious motif. These sophisticates recognized the healthful qualities of sunlight and employed same in the prevention and treatment of disease. From this period, civilization retrogressed and until the turn of the century sunbathing was a negligible practice, probably because of prejudice, falso modesty, ignorance and the multitudinous psychopathic notions all so rampant during the dark ages.

Today, the pursuit of the sun has assumed the intensity and devotion of a religion—among all races, all social strata and all ages. From Finland to the toe of the Italian boot, and beyond, and here in America, from coast to coast, we witness millions of persons exposing a legal maximum of epidermis with a fanatical enthusiasm. Those economically able are not content with merely a summer of sun but migrate to those latitudes where they can bask in sunshine even during the winter months.

Factors Responsible for Modern Sun-Cult

The motivation for the global return to the outdoors is manifold and diverse. Enlightenment should be credited as a strong impetus. The perverted dogmas of modesty have been dispelled by the searchlight of truth and knowledge. The human body is not evil to look upon nor is the exposure of same a sin. Even as recent as fifty years ago, bathing suits concealed so much body surface that sunbathing was a futile effort. From the bathing apparel of the 1900's to today's Bikini represents greater emancipation from the chains of stupidity than that achieved during the past five hundred years.

One of the most important factors accountable for today's universal participation in sun-worship is the gradual but irresistible evolution of our social structure. Unified labor and cooperative capital have concertedly and happily abolished the dawn-to-dusk working day. This was an admirable and distinct advance in the science of human relations but relatively insignificant when compared with the revolutionary upheaval that

is being literally detonated by rapid and inexorable progress in technology and subsequently automation. The eight-hour day is even now excessive so far as the maintenance of our immediate industrial status quo is concerned. As a matter of fact, if automation at this date were fully implemented without restraint, our industrial and service output could be maintained at present levels with a four-hour day. The relevance of such tremendous strides in industrial science to the suntan industry is readily apparent. The wage earner enjoys leisure time undreamed of fifty years ago and this will be increased. While automation has been held in check, it cannot be contained for long. Full utilization of industrial technocracy will permit the masses to devote possibly three or more days per week to their own pursuits. Naturally this will be translated into more and longer holidays and vacations greatly expanding the opportunity to indulge in outdoor activities.

Vacationing requires not only time but also money. The economic status of America is at an all-time high and slowly but steadily improving. This too has been influential in powering the all-engulfing wave of sun-worship. Efficient and cheap transportation has encouraged and facilitated a mass return to the outdoors.

tial portion of their time and money into the relatively new yet age-old pursuit of the sun.

A lesser influential which should be included in this discussion is education relative to the healthful effects of sunlight. This aspect of solar radiation has been subject to conflicting opinions. We shall later point out certain benefits which seem to be concretely attributable to sunshine. In any event millions of persons do indulge in sunbathing because of a demonstrable elevation in tonicity, physical and mental. Whether this is psychologic or otherwise is at this moment unimportant. The pertinent fact is that countless persons are able to gain stimulation by engaging in some sort of outdoor activity which brings them within the dominance of the sun.

In recapitulation, we list the factors primarily responsible for the unparalleled popularity of sunbathing as follows: Increased leisure time; improved economic conditions; faster and cheaper transportation facilities; instinct; last but not necessarily least, education indicating the healthful benefits of outdoor recreation.

Return to Nature Costly

The present global, almost-hysterical recurrence of

INDUSTRY

by L. Stamborsky

Air travel especially has brought into access the tropics and semi-tropics for winter sunbathing. Cosmetic considerations should not be overlooked as an impelling factor in the twentieth century sun-cult. There can be no denial that a deep, coffee or bronze tan is complimentary to everyone—male and female, young and old. Dermatologic imperfections and physiologic sins are well hidden by a good suntan. The texture of the skin is enhanced—becomes clear, firm and more youthful, and radiates a subtle halo of health. Dior, Fath and other high priests of fashion could issue anti-tan proclamations until doomsday, but with the certainty of day and night, the end of the summer will find every female with a deeply pigmented epidermis.

An unrecognized force which has contributed materially to the momentum of wholesale sunbathing is instinct. Although Man is today practically devoid of any unreasoning impulses, (this is not to be confused with physiologic pressures such as hunger, sex, etc.) a few feeble voices of his dim evolutionary past do make themselves heard. At the end of a rigorous, dark winter, to seek the bright spring and summer sun is as natural and spontaneous as breathing. The impact of sunlight on the skin is warm, pleasurable and relaxing, gratifying as it does some sort of indefinable urge; to everyone these reactions are reason enough to channel a substan-

sun-worship has indubitably paid off generous health dividends but it has simultaneously extorted a huge toll in the form of damage to an important body organ—the skin. Why our beneficient celestial atomic pile should wreak such wholesale injury has been elaborated in detail elsewhere.[31] The crudest approximation of the number of solar burns which occur annually would be enlightening. The first step in such a determination would be to deduce how many persons participate in sunbathing and the total number of participations.

Number of Persons Who Court the Sun

In a survey of this type, we have no alternative but to average estimates emanating from strategic outposts. The American Automobile Association predicts that 75 million persons will travel to vacation spots during the coming season. Most, but not all of these vacationists will remove enough clothes to be classified as sunbathers. The writer is of the opinion that about seventy-five per cent of this group, or about 56 million, will seek large-area contact with the solar spectrum. Another barometer of some significance is the number of bathing suits manufactured in America, and it is presumed, sold. According to the National Knitted Outerwear Association, over 36 million bathing suits were produced in 1954. How many bathers does this represent? The

average man buys a new suit about every three years, and the average female changes her bathing wardrobe about once annually. In view of the increment and discard rates, there must be at least 100 million units of beach wear available and functional. This could be interpreted as being indicative of 100 million active devotees of either the sea, sun or sand.

Sunbathing can be specific or inadvertent. Outdoor sports such as sailing, tennis, bicycling, walking, etc., by virtue of the brevity of the usual attire for same, can and does expose vast areas of bare skin to solar radiation. Those taking part in the above activities must total in the millions although no figures were available.

Swim for Health Association volunteered the appraisal that eighty million persons are active members of the sun-cult fraternity, and that these participants will average about ten participations a year, or a total of 800 million solar irradiations. A relatively few beach and pool attendance records might prove informative. Jones Beach announced a patronage of eight million during the summer of 1954. Four hundred thirty-eight manicipal beaches reported 152 million persons passed through their gates. These installations are only a fraction of the facilities available from coast to coast and throughout the interior of the United States.

It is estimated that America spends 30 million dollars for sun glasses, which at an average price of one dollar, means that 30 million persons are purchasing these summer appendages. Since these devices do not wear out, but are only broken or lost, the annual increment would seem to indicate a total of about 100 million units in use during the sunny months.

Bathing cap sales would constitute an interesting measurement of the female votaries of Ra but unfortunately there is no available data. However, any department store or beach store or drug store, can attest that bathing caps are big business, running in the millions of dollars, and since they average about fifty cents at retail, the total sold is formidable.

We have delineated a few crude dimensions of the sunbathing scene. Viewed from any angle, the total participants in this national pursuit would amount roughly to 100 million persons, and if the average person experiences ten irradiations during the season, the grand total becomes truly astronomical, or about one billion individual exposure to the sun.

Prevalence of Sunburn

An appraisal of even limited accuracy relative to the number of solar burns suffered annually would be contribution to the suntan industry, if for nothing else, to serve as a yardstick of the customers that could and should be had. To attempt to count individual burns would be a Herculean and expensive undertaking. The most feasible method would be to determine the annual expenditures for the relief and treatment of solar burns.

Drug Topics Survey reveals seven million dollars is estimated as the sum spent for burn remedies in 1953. The purchases represented herein were not all employed exclusively in the treatment of solar dermatitis. Millions of minor thermal burns occur in the home and industry throughout the winter. Seven million dollars would be equivalent to about eight million units inasmuch as these products average about 75 cents. Not more and possibly less than six of the above eight million units will be used in the management of painful sunburn—or in other words if the estimate is correct, only six million sunburned bodies were treated last season. This figure is not valid and should be rejected, which suggestion will be supported in subsequent exposures.

An extremely popular greaseless skin cream, widely exploited for the alleviation of painful insulation, disclosed a total volume of nine million dollars. The average wholesale price is somewhat less than 50 cents, (averaging the various sizes), which yields about 18 million units sold last year. From the writer's experience as a retail pharmacist and from the questioning of many druggists, it was concluded that not less than 90 per cent of the above figure is sold for the treatment of sunburn, or about 16 million units. This is of course indicative of 16 million over-exposures, which is a highly dependable figure but far from complete so far as the over-all picture is concerned.

We find the annual sales for suntan products are estimated at about seven million dollars. Investigations at three of the largest wholesale drug houses in the east brought forth the interesting opinion, that for every dollar's worth of suntan merchandise they sold, ten dollars' worth of treatment products were funneled into the druggist's shelves. This would seem to signify that 70 million dollars were spent in the treatment of the most common of all summer maladies—sunburn. The writer feels this too is an untenable estimate. To remain on the conservative side, half of the above figure or 35 million dollars is adopted as being most representative of the truth. With an average unit price of 75 cents, 35 million dollars would be the equivalent of 44 million units of burn remedies sold during the entire year. There are of course, millions of thermal burns treated annually with these same products. The writer's studies and inquiries at the retail drug counter and elsewhere, authorize the belief that 60 per cent of these 44 million units are purchased within the summer months and are employed in the treatment of over-exposure to radiant energy. If 60 per cent of 44 million units, or 26 million units of burn remedies are sold, it is a logical assumption that about 26 million persons endured solar burns. The writer wishes to reiterate, in all calculations, he has chosen to be ultra-cautious in order to underestimate, rather than exaggerate.

We are now beginning to approach the boundaries defining the incidence of sunburn. The integration of another pertinent phenomenon is required at this point for greater accuracy. Sold in thousands of pharmacies from the Atlantic to the Pacific are an endless array of concoctions not specifically regarded as burn remedies but which do enjoy large volume sales, motivated either

(Continued on page 419)

Precision Vials to Meet any Requirements!

Demuth...the RIGHT Vial for You!

The Quality Line of the Year!

Snap Cap Vial
Polyethelene
Cap as Closure

Ring Finish Vial
Snap Cap as Closure

Tooled Neck Vial
Polyethelene
Stopper as Closure

C. T. Finish Vial
Molded Plastic
or Metal Screw Cap
as Closure

Patent Lip Vial
Cork or Rubber
Stopper as Closure

Shell Vial
Polyethelene
Stopper as
Closure

Pictured in this advertisement are six of the commonly used styles of vials. Demuth makes many other specialized types of containers, and all these containers are fabricated from machine-drawn glass tubing. Great flexibility is possible in the development of specialized and individual containers without mold expense.

Demuth's complete line of lightweight crystal clear glass vials embodies quality and precision, complimenting the high standard of your pharmaceuticals, toiletries and other products, providing a quality package of high merchandising value.

The uniform wall thickness of Demuth vials means perfect visibility without distortion. They retain their clarity, will not cloud, craze or scratch. They provide protection, keeping your preparations fresh, dry and potent. They have eye appeal to help sell.

We solicit your inquiries and will be pleased to assist in working out any new development or packaging problem. For glass containers of the highest quality, buy Demuth. There's a Demuth vial to meet your exacting requirements.

THERE'S NO SUBSTITUTE FOR *Glass*

DEMUTH Clearglass PRODUCTS

DEMUTH GLASS WORKS, Inc.

PARKERSBURG, WEST VIRGINIA

Sales Offices
NEW YORK
CHICAGO
PHILADELPHIA

the case for quality

Consumer acceptance permits no compromise with quality. That's why at Plume & Atwood all lipstick containers, whether standard type or your own distinctive design, are made to one undeviating specification — QUALITY.

P & A Standard Containers

STYLES: Full Dome Top
Semi-Dome Top
Flat Top

TYPES: Free Wheeling, with .477 or .500 cups
Swivel, with .477 or .500 cups
Push-Up, with .477 or .500 cups

FINISHES: Polished and lacquered,
Embossed, Enameled,
Banded, Imprinted, etc.

Call or write us for all your requirements. We have the experience and equipment unequalled in the trade.

We're moving March 30th to our NEW million-dollar plant in THOMASTON, Conn.!

P&A

A PANDA PRODUCT

THE PLUME & ATWOOD MFG. CO.

THOMASTON, CONN. N. Y. Office: 220 Broadway

Packaging and Selling

Charles of the Ritz winning package (Ishah) in the Beauty Fashion Contest.

Beauty Fashion Awards

Beauty Fashion Magazine last month presented its annual awards for the finest packaging, advertising, promotion and merchandising policy in the cosmetic industry during 1954. Since two firms last year were singled out for their outstanding packaging, two packaging awards were presented, one to Charles of the Ritz, and the other, to Elizabeth Arden.

The winning Charles of the Ritz entry was the Ishah package, trimmed with gunmetal soutach braid on a Mediterranean blue background. Elizabeth Arden's Ardena Invisible Veil powder was selected because of the very effective three-dimensional, flowered box.

Charles of the Ritz also received a second award for its merchandising policy, making this the ninth consecutive year this firm has been so honored by the Jury of Award.

Revlon won recognition for its outstanding 1954 advertising program, with the ads for Queen of Diamonds, Lanolite Lipstick, Silken Net and Kissing Pink receiving special mention.

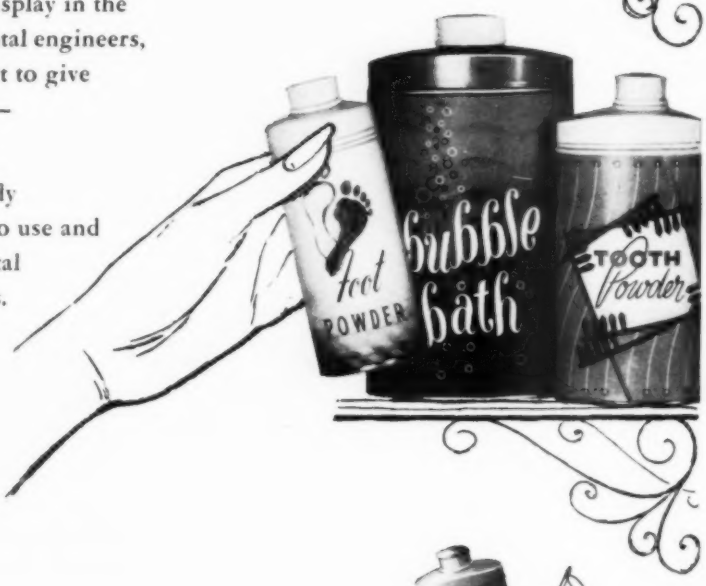
(Continued on page 396)

Continental gives personal packages

Your Personal touch

We're well aware of the place of honor that proprietary products hold in every woman's home. We know, too, how some packages wear out their welcome after weeks or months of display in the bathroom or boudoir. That's why Continental engineers, designers and lithographers spare no effort to give proprietary packages your personal touch—one that continues to please.

Once completed, these containers are sturdy protectors of fragrance and texture, a joy to use and a pleasure to look at. You'll find Continental service, too, is tailor-made to fit your plans. From deliveries on down the line—very personally yours.



Our Fiftieth Year of Tailor-Made Packaging

CONTINENTAL CAN COMPANY

EASTERN DIVISION: 100 E. 42nd St., New York 17
CENTRAL DIVISION: 135 So. La Salle St., Chicago 3
PACIFIC DIVISION: Russ Building, San Francisco 4

Gift Packages by Angelique

The gift package has always been a stalwart pillar in the foundation of cosmetic and fragrance prosperity. This has been particularly true in the fragrance business, where over 80 per cent of the perfume business has been transacted in retail stores during six weeks before Christmas. At the same time, the gift package has provided a plague, a nuisance and a danger to most of these companies, as has been shown by the recurring flow of returned goods following Christmas.

Because of these dangers, and loss from returned goods, there has been a growing complex among cosmetic and fragrance manufacturers to reduce the importance of the gift market by increasing and stabilizing consumption during other months of the year. One of the fundamental reasons for the forming of the Fragrance Foundation was to accomplish this purpose.

While it must be a program of the industry to stabilize consumption as much as possible during the year, the blunt facts are that a substantial part of the business must also come from gift occasions. It is also true that the industry has practically retreated from any sales or promotional efforts on many minor gift occasions such as birthdays, June Weddings and others which could mean a plus in business.

Before the War, Easter and Valentine's Day gave quite a bit of added business to the industry and were certainly the occasions for very active promotions by manufacturers and stores.

During the last ten years the Christmas gift packaging of the cosmetic and fragrance industry has retreated to a point where the large majority of these packages have set a $5.00 retail price limit which has imposed, in turn, serious limitations on the scope of the packaging. There has also been a strong trend to making up this package from a composition of staple products, with an inexpensive gift carton which can be thrown away by the store after Christmas, returning the staple goods to the store shelf.

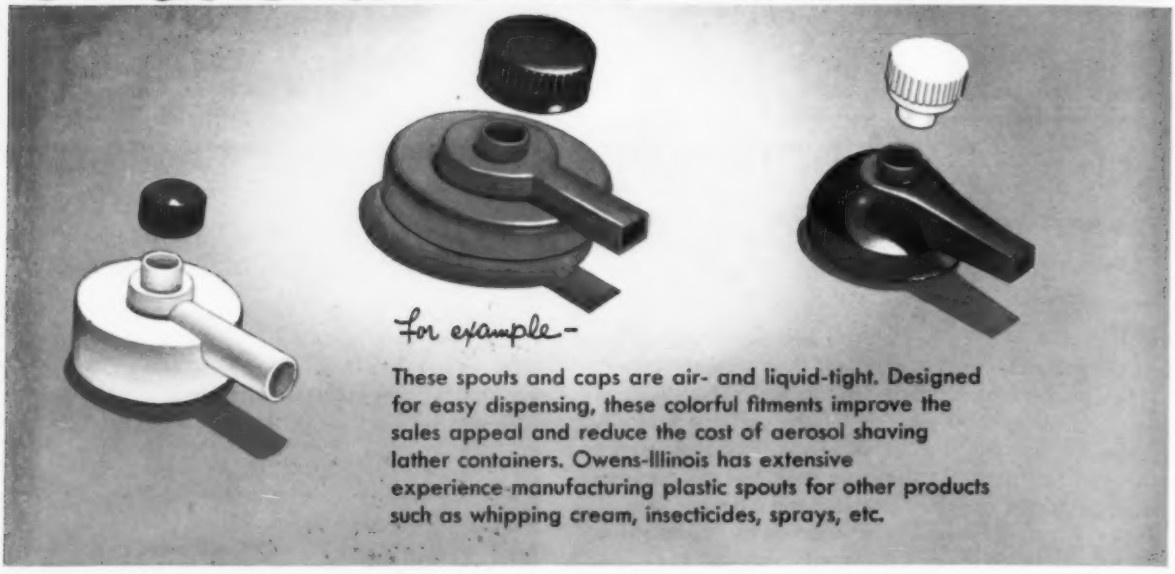
In an interesting and original promotion, Angelique of Wilton, Connecticut, comes up with an idea that opens a possibility for continual gift presentation adapted to a succession of gift occasions throughout the year.

In this promotion two new packages, each containing two of Angelique's fragrances, give a customer the opportunity of selecting any two of the well-known fragrances of Angelique, that is, Black Satin, White Satin, Gold Satin and Red Satin. This customer can then make a choice of six special labels to attach to this carton. These labels, with room for the signature on each one, are very attractively printed and have the choice of phrases which include "Thank You," "Happy Birthday," "Anniversary," "Bon Voyage," "Speedy Recovery" and one label blank for writing in special readings. In addition, the customer can make her selection, on each of the gift-giving days such as Valentine, Easter, Mother's Day, etc., of an attractive carton package sleeve which fits over the perfume carton and transposes the whole package into a new gift package.

Besides being an original and creative promotion which has already had wide acceptance in the retail trade, it seems to us that this is a badly-needed device by this industry. By "device" we mean a method of economically providing the cosmetic retailer with a chance to compete actively for every gift occasion without the need for carrying excessive special stock and without the danger from the manufacturer's viewpoint of returned goods.

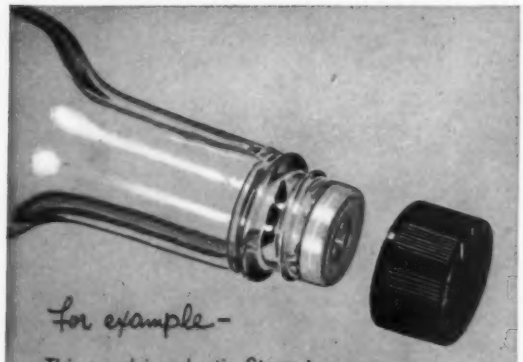
For precision and versatility—choose

OWENS-ILLINOIS for PLASTICS



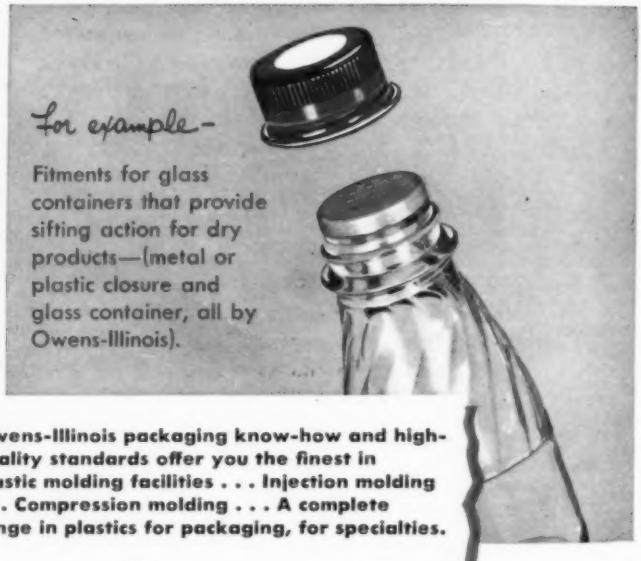
For example—

These spouts and caps are air- and liquid-tight. Designed for easy dispensing, these colorful fitments improve the sales appeal and reduce the cost of aerosol shaving lather containers. Owens-Illinois has extensive experience manufacturing plastic spouts for other products such as whipping cream, insecticides, sprays, etc.



For example—

This no-drip plastic fitment for liquid condiments simply slips on top of bottle. Plastic closure gives a positive, leak-proof reseal.



For example—

Fitments for glass containers that provide sifting action for dry products—(metal or plastic closure and glass container, all by Owens-Illinois).

Owens-Illinois packaging know-how and high-quality standards offer you the finest in plastic molding facilities . . . Injection molding . . . Compression molding . . . A complete range in plastics for packaging, for specialties.

Branch Offices:

Albany . . . New York	Columbus . . . Ohio	Memphis . . . Tennessee	Portland . . . Oregon
Atlanta . . . Georgia	Dallas . . . Texas	Milwaukee . . . Wisconsin	Richmond . . . Virginia
Baltimore . . . Maryland	Denver . . . Colorado	Nashville . . . Tennessee	Rochester . . . New York
Birmingham . . . Alabama	Detroit . . . Michigan	New Orleans . . . Louisiana	St. Louis . . . Missouri
Boston . . . Massachusetts	Fresno . . . California	New York . . . New York	St. Paul . . . Minnesota
Buffalo . . . New York	Houston . . . Texas	Oakland . . . California	Salt Lake City . . . Utah
Charleston . . . West Virginia	Indianapolis . . . Indiana	Oklahoma City . . . Oklahoma	San Francisco . . . California
Charlotte . . . North Carolina	Jacksonville . . . Florida	Omaha . . . Nebraska	Seattle . . . Washington
Chicago . . . Illinois	Kansas City . . . Missouri	Peoria . . . Illinois	Toledo . . . Ohio
Cincinnati . . . Ohio	Los Angeles . . . California	Philadelphia . . . Pennsylvania	Yakima . . . Washington
Cleveland . . . Ohio	Louisville . . . Kentucky	Pittsburgh . . . Pennsylvania	

OWENS-ILLINOIS PLASTICS
AN (I) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO

Packaging and Selling

Jones, Call up our advertising agency and tell them to prepare a half-page ad for the trade papers to announce our 10-million-dollar consumer campaign.

Growing French Cosmetics

It is interesting to observe that quite a number of leading American retailers, that is the top fashion department stores in the United States, are showing a great deal of interest in imported French treatment and make-up products. In fact, quite a number have already purchased, and are giving a favorable position to, two of these lines.

Lancome is the first French company to enter America in over two decades with a full treatment line of creams and associated products. This line was opened up over a year ago in Saks-Fifth-Avenue and reports are that the sales volume for this year substantially exceeded $50,000.00 in that store and lived up to the expectations of both the store and the French company. Distribution is being expanded at the present time and a limited number of leading department stores will be opened during this year.

Another French company, newly entering this country during the last few years, is Orlane, represented here by John Hudson Moore, Inc. This company had hardly launched its line when it found an amazing degree of interest from leading retailers. Distribution, preceding any advertising at all by this company, has been going at a pace that would be truly astounding if this were a new American treatment line seeking a limited, selected distribution in the top fashion department stores.

According to an executive of one of the leading retailers, who is noted as a very shrewd observer of current events, there is a strong possibility that there will be a growing volume of interest in French imports for creams and makeup products. According to this retail observer, there is a distinct turn of the tide in this direction. His observation is that 30 or 40 years ago French cosmetic products of this sort had world prestige and were the primary products of this market. During the following years, the American cosmetic industry developed a technical superiority which gave the U. S. cosmetic world leadership. Added to this, the fashion prestige reputation which our leading department stores gave to cosmetics plus the world-wide publicity of American moving pictures and magazines, carried American cosmetics to every corner of the world with unquestioned supremacy.

"Now, said this retail observer, "The French have completely caught up to America in technical competence and in the quality of their cosmetics, their color control and research and they have added to this their flair for packaging and for styling.

These things in themselves would not be sufficient to give a French line a plus on this market. What is happening, this retail executive observed, is that the current American madness for volume, for mass advertising and for expanding distribution is destroying certain vital elements in the value which fashion department store now see in many American lines. In other words, the strictly controlled distribution and franchise method of selling is being thrown over by a great many American cosmetic manufacturers. The style department store does not see the same future for their department in these lines, in competition with a mass market and in such outlets as the grocery store. They do see in some of these new French lines a philosophy of selective distribution such as has been traditionally employed by the leading French perfumers. This, in the opinion of this retail executive, is the only type of cosmetic producer with which the department store can safely do business on a long-range basis.

As Others See Us

Here are the conclusions of a British marketing consultant, as published in a British magazine, after a visit to the United States.

"As to selling America," this marketing expert says, "We don't know the first thing about it. Except for Schweppes and Yardley, who are both doing first-class marketing jobs, English methods are moronic.

"When you sell to the Americans you must do it by American methods. Be damned to our modest-violet ways. Understatement has caused us millions in exports. The American likes to be sold. We think that rather vulgar. My advice to anybody who wants to sell to the States is, "Go buy a good book on American salesmanship. They are legion. Have a good laugh—but read it again. Then remember that the American is trained on this and wants to be sold in this way."

This Wonderful Country!

A washing machine manufacturer is in a dilemma—a publicity dilemma. Here's what he asked newspaper editors in a recent letter. "Should we photograph our new machine with lovely ladies whose curves are accented—as we have done in the past? Or, should we follow the fashion completely and show the new machines with the same lovely ladies dressed in the newest of fashion styles—Dior's H-line." We urge the latter. The scene should be in a Dorothy Draper drawing-room, the ladies should be drinking champagne, and a gentleman, obviously a diplomat, should be lurking in the background.

. . . . .

If you don't have nightmares it won't be because pajama manufacturers are not trying. It all started from an advertisement, said to be the first time an ad created the product instead of the product dictating the ad.

The advertisement was the full color eye-and-lip page which caused some hot controversy in advertising circles. As a fabric design its sales success is writing new pajama history. "We turned the Kiss down cold at first," said one eminent buyer. "But up to now we've reordered nine times, and we have a window display."

Pharmaceutical Soft Drinks

Maybe the drugstore is on the way to becoming the biggest outlet for soft drinks. Super-markets, take notice.

This could certainly happen if the Southern California test on "Magic Pop Drops" are a success. This product is a concentrated pellet which, when added to a glass of cold water, makes a carbonated flavored drink.

As a matter of fact, pharmceutical manufacturers are old hands at the carbonated tablet and they know at least as much about flavors as the soft drink people. Here's hoping that one of the pharmaceutical manufacturers will see a specialty lurking around that will give him a real chance for tackling Coca Cola and Pepsi Cola.

Iowa Market

The Fourth Iowa Brand Inventory reporting on more than 14,000 brands has just been issued by the *Des Moines Register and Tribune*.

Iowa has a total drug and cosmetic sales volume of $72,011,000 which makes it one of the primary markets of the United States.

Shaving cream in pressurized cans shows an increase to 27.4 per cent of use in 1954 as compared to 11.9 per cent in 1953. At the same time lather shaving cream has dropped to 30.4 per cent use from 35.8 per cent in 1953 and brushless shaving cream to a percentage use in 1954 of 26.8 per cent as compared to 32.6 per cent in 1953.

Electric razors jumped to 48.4 per cent in 1954 as compared to 40.1 per cent in 1953. It is interesting to note that farm and city are almost equal in electric razor use.

According to this survey nail enamel is gaining. In 1954, 63.1 per cent were using nail enamel as compared to 56.8 per cent in 1953.

Eighty-eight per cent of the Iowa ladies are now using lipstick, 75.2 per cent liquid shampoo, 45.3 per cent cream shampoo, 73.4 per cent a liquid hand lotion, 52.3 per cent hand cream, 71.4 per cent a face cream, 87.6 per cent face powder and 87.7 per cent a personal deodorant.

As a market that needs apparently much better exploitation, only 35.1 per cent use baby oil and 37.3 per cent a baby powder. This is an almost static market in Iowa with a slight increase in baby powder and a slight decrease in the use of baby oil.

Via Toys

This industry, and a few others, have been taking advantage of the toy industry as a way of sampling their product, educating the coming generation to their product and for general adult publicity. The way in which several companies in this industry make use of the doll is an example.

John H. Breck, Inc., in conjunction with several other leading national advertisers in other industries is co-sponsoring a program in which over six million authentic replicas of posters, which feature their products, will be given to children who own or purchase model trains. These posters are being distributed without charge by the Lionel Corporation.

Still Booming

We have been waiting for someone to combine the competitive advantages of the food super-market, the discount store, the Farmers' Market and, on a broader scale, the shopping center and the amusement park into one co-ordinated operation. That, it seems to us, would be modern America at its best. Or is *best* the word?

A new retail operation called Thrift-mart, Inc., 505 Fifth Avenue, New York, apparently has this ambitious objective. Their first venture will be a shopping center all under one roof housing 300 to 400 merchants in the booming Levittown, Pennsylvania area.

Merchandise in active consumer demand and quick turnover at the lowest possible cost to the consumer is the keynote. Parking for 3500 cars, a Kiddieland for children, a large bowling alley and many other innovations will be used to establish a wide trading area.

Aerosols in Drug Stores

Retail drugstores are doing a good job with aerosol products. According to a du Pont study, conducted in sixty-one cities, nine out of ten drugstores carried insecticides, room deodorants, moth-proofing agents and toilet articles in aerosol containers.

Hair lacquers were the best sellers in aerosol containers in the toiletry field. Drugstores estimated that 81 per cent of sales of hair lacquers were made in self-spraying

SHEFFIELD TUBES

SELECTED BY THE UPJOHN COMPANY

In man's patient fight against bodily ill, pharmaceutical companies steadily contribute potent new combination formulae. Upjohn's Neo-Cortef® ointment *combines* anti-inflammatory action with wide-range anti-bacterial action. It's prescribed by physicians for many skin infections including certain types of eczema, pruritis and dermatitis. For this effective ointment, *Sheffield Process Tubes*...the sanitary safe collapsible metal tube...is a natural selection. Why not use Sheffield for *your* next order!

The Sheffield Tube Corporation FACTORY AND HOME OFFICES: NEW LONDON, CONN. • SALES OFFICES: NEW YORK • CHICAGO • LOS ANGELES

Now! New Crown Plastic Swivel Stick...

CROWN

Seal STIK

New Container Makes Your Product Safe To Carry For Milady's Purse

Yes...now your cosmetic products can go with milady...as she travels to town and country. New Crown plastic SealSTIK containers keep your product fresh under a jar-like protective seal.

Besides famous Crown protection, SealSTIK gives your product new colorful sales-appeal . . . new convenience . . . and practical versatility. Made of durable plastic, it's a natural container for colognes, deodorants, chap-sticks, insecticides, and many other products. And SealSTIK is so easy to use...it's no more trouble than using a simple lipstick!

CROWN

Seal STIK

CROWN CORK AND SEAL COMPANY, INC.

Specialty Division • St. Louis 15, Missouri

Your Favorite Color in 3 Sizes

SealSTIK is now available in handy ¼, ½, and 1 ounce sizes. The stunning range of colors is unlimited. Write today for FREE samples and more information. Please state size and color you need.

containers. Percentages of sales in aerosols were shaving cream 48 per cent, hand sprays 26 per cent, colognes and toilet water 14 per cent, hair shampoos, 13 per cent and sunburn preparations 17 per cent.

Variety Store Pkg. Competition

Johnson & Johnson, Colgate-Palmolive Co., and the Toni Co. won awards in the cosmetics and toilet goods division of the 19th National Variety Packaging Competition which was held on February 10. Sponsored by *Variety Store Merchandiser*, the contest included about 500 package entries, the largest number in its history. The awards, which were presented to entrants in seven different categories, were won by 26 leading Variety Store suppliers for their outstanding packaging designs. Judging took place in the Advertising Club, Park Ave. and 35th St., New York.

Johnson & Johnson received the gold Award for its Band-Aid Patch-Spot Strip package, designed by Nowland and Schladermundt, industrial designers of New York.

Silver Awards went to Toni for its "Viv" Lipstick and to Colgate-Palmolive for the firm's Halo Shampoo package.

Tenth Annual Folding Carton Competition

One hundred winners in the 1955 Folding Carton Competition were selected last month from a record-breaking total of 6,782 entries. These winning entries will be announced and displayed, along with all the other competing cartons, during the annual meeting of the Folding Paper Box Association of America at the Drake Hotel, Chicago, from March 28 to 30.

The purpose of the Annual Competition, sponsored by the Association, is to stimulate improvement, quality and creative thought in the production of folding paper cartons by offering appropriate recognition to outstanding examples of progressive packaging. This is the 10th anniversary of the competition.

PDC Packing Awards

Of 42 awards and honors received for outstanding entries in last month's packaging competition of the Package Designers Council, nine prizes went to firms in the drug and cosmetic industries. Those in the drug category included: Johnson & Johnson, for Band-Aid Plastic Strip Packages. Honorable Mentions were received by Acme Cotton Products Co. (Acme Cotton Products Line), the Mennen Co. (Mennen Baby Line), and Ciba Pharmaceutical Products Co. (Privine Ciba Specialties.

Awards for cosmetic packages were won by: Elmo, Inc. (So-Gay!), with Honorable Mention to Gourielli, Inc. (Fourth Dimension Line) and Sears, Roebuck & Co. (Top-Note Men's Cosmetic Line).

In the Gift Package category, Helena Rubinstein won Honorable Mention for its Carriage Trade Line.

In the New Package for New Product category, Colgate-Palmolive Co. received an award for Ad Detergent.

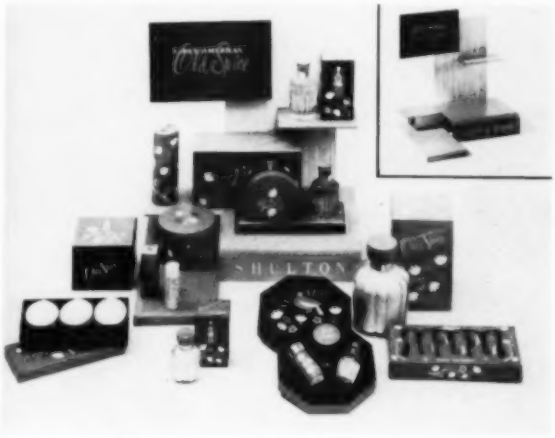
The top Prize, the Irwin D. Wolf Award, was presented to Sylvania Electric Products Inc. for the Sylvania Gift-Pak.

Shulton Repackages

It isn't very often that a company re-designs an entire line of packaged products at a time when there is every evidence that both the public and the retailers are still identifying these packages as a prime success.

Early American Old Spice toiletries first appeared in a Pacific Coast department store in 1937. Within a few years these products swept across the country and soon became one of the prominent and favored lines in the entire cosmetic industry.

Now, in celebration of its eighteenth year as a classic fragrance line, Shulton has created a new package



design. This new design is an interesting and beautiful interpretation of the historic past of Americana from which these packages originally sprang.

The original motifs, which are retained, are more stylized, are a modern interpretation and have striking new colors. Bright accents of gold, white and geranium of muted blue and charcoal backgrounds give a rich hand-painted quality. Sparkling new fluted bottles have gold foil and big blue tops.

Book Review

"Automatic Selling" is a comprehensive, thoroughly interesting book on a subject which we believe will continually grow in importance in this industry.

As technical machine improvements continue to develop in the automatic vending machine and as the technique in using it as a retail outlet grows, it seems logical that many ordinary convenience or utility products of our trade will gravitate toward the machine.

We quote here the first three paragraphs of this new book.

"Three million silent salesmen are changing the complexion of U. S. retailing. Working day and night in the tireless way of machines, they are opening new markets for foodstuffs. They are helping to dispose of the nation's tremendous dairy output. They are showing retailers how to sell low cost, high turnover merchandise at a profit. Most of all, they are offering the public a new kind of service and convenience.

"These silent salesmen are the automatic selling machines which are revolutionizing many traditional methods of doing business. In industry they are replacing cafeterias and mobile carts. In retail outlets they are replacing shelves and counters. Aboard trains

THE *Aerosol Valve* FOR YOUR PRODUCT *by Precision*

NOW... Precision's same high quality, time-tested aerosol value is being manufactured in England, France, Germany, Italy and Brazil. The availibility of the Precision Valve throughout the world now permits your foreign sales to enjoy the same aerosol growth and success that has been experienced in this country. So wide-spread has been the public acceptance and demand for self-dispensing packages, that new type products and additional brands are added daily to the long list. Now is the time for you to investigate this market.

Why is Precision the Leader?

DESIGN . . . The wide range of Precision Valves featuring postive, fingertip operation assures a successful solution to your specific spray requirements.

CONTAINER . . . Precision has a valve engineered for the aerosol container of your choice plus the widest selection of plastic colors to enhance the beauty of your package.

PRODUCT... Plastic construction eliminates corrosion enabling Precision Valves to perform efficiently for all products whether foam, residual or true aerosol.

FILLING METHOD . . . All types of aerosol products with Precision Valves, are being filled successfully by pressure as well as refrigeration at the lowest possible cost.

QUALITY . . . Precision's basic research, production skill, development techniques, 100% inspection of every valve *plus* the background of over 150,000,000 time-tested valves is your assurance of quality.

ECONOMY . . . The highest plant production efficiency, as well as the lowest rejection rates for filled containers, assures maximum economy with Precision Valves.

AVAILABILITY . . . The world's largest aerosol valve manufacturing facilities, are combined with the lastest production methods and techniques, to give prompt production and delivery schedules.

● *We invite your inquiry to enable our staff of aerosol valve technicians to work cooperatively in satisfying your valve requirements.*

PRECISION

Precision Valve Corporation

700 NEPPERHAN AVENUE • YONKERS 3, NEW YORK

they are replacing dining cars. In drug stores they are replacing soda fountains.

"During the last 10 years, the volume of sales through automatic machines increased some 300 per cent. During the next five years, if automatic selling continues at its present rate of growth, sales will at least be twice as great."

Polyethylene Storage Jars

Bottles and storage jars are now being made of polyethylene, with heavy-wall, all-welded construction. These bottles and jars are designed for handling acid and other corrosive liquids and are said to be especially important where the elimination of permeability in handling organics are a factor.

Glass Shipments

The shipment of glass containers for use in the packaging of drugs and cosmetics totalled $24,534,000 gross in 1954 as compared with $24,711,000 in 1953.

Retail Advertising

According to a recent panel discussion for a leading group of retailers, publication advertising is by far the most important medium for retailers and it is in this medium that retailers put over 90 per cent of their advertising dollars to bring people into their stores.

"One obvious advantage of the printed word is that the reader can refer to the ad a day or a week later if he keeps a copy of the publication.

"Publication advertising can be strongly merchandized by the retailer with all sorts of point of sale helps. It gives the display manager a wonderful handle for tie-in and promotion.

"Follow through is much easier with publication advertising. Follow through often means the difference between advertising paying off and falling on its face."

Use of Collapsible Tubes

A news release of the Collapsible Tube Manufacturers Council shows the predominant importance of this industry, with its drug and cosmetic products, in the use of these particular containers. Probably no other container in the entire packaging field has such a predominant part of its volume used within this one industry as does the collapsible tube folks. According to this release, over 82 per cent of all collapsible tubes are used in packaging the products of this trade.

These uses are:

Tooth Pastes	475,676,352
Cosmetics	83,678,832
Shaving Creams	59,423,184
Medicinals & Pharmaceuticals	177,807,888
	796,586,256

Other uses are very small indeed compared to these predominant classifications. For instance, adhesives, glues, cements, colors and paints total during the year of this report, that is 1954, 162,712,944 units. The food industry, a very minor fringe user of tubes, consumed only 603,504 units.

Sez You

The liquor industry has been having its packaging field day. The big, competitive urge of the leading distillers to outdo each other in fancy containers, for which they make no extra charge, has been deeply interesting to those of us who are associated with the perfume industry.

Just now the Perfumers, through the Fragrance Foundation, are actively and anxiously striving to climb out of a predominant gift classification into a status where the consumer recognizes fragrance as a product for everyday purchase and use.

As everyone will admit, liquor makes an excellent gift and there is no reason why liquor should not be gift packaged, even though this means the use of an expensive container, the extra cost of which must come out of the distiller's own pocket. Nevertheless, there do appear some rather tricky complications which could arise out of this active advertising and merchandising of the gift bottle.

Now the head of a leading Scotch whiskey house observes, "How many liquor packages are clumsy to handle, difficult to pour and store, and lack both eye appeal and in many instances, even good taste?"

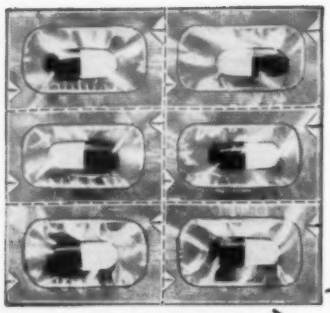
This does not seem to leave very much in the way of beauty, virtue or usefulness for the liquor bottle, but then he goes on to say, "In the liquor business you can't marry esthetic appeal and functionality to practicality. The public has come to demand and rightfully to expect the good design it now finds in the vast number of consumer goods. The day of 'cuteness' and 'trickiness' in bottle design is thankfully about over."

Our answer to this is, "Sez you."

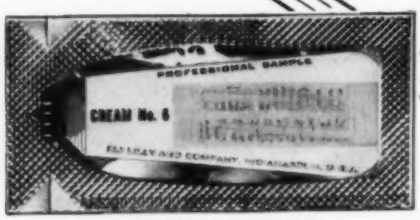
New Unbreakable Vials

New unbreakable vials with handy flip-up hinged caps are being made of Bakelite polyethylene. These translucent vials can be opened or closed with one hand and are light-weight containers suitable for holding pharmaceuticals. They are available in natural or green color in 2-, 4- and 7- and 10-dram standard sizes. Special colors and sizes are available upon request.

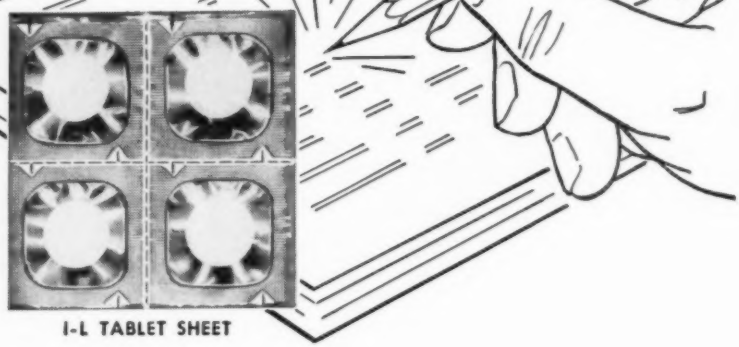
Check Packaging Costs with a Sharp Pencil



I-L CAPSULE SHEET



I-L CREAM PACKAGE



I-L TABLET SHEET

Is your first concern cost?

If so, you should check with Ivers-Lee. Whether your need is for 5,000 unit-packages or 500,000,000, Ivers-Lee applies the same production line, money-saving techniques. As *only* I-L can give you the benefits of economies derived from these modern, large scale production methods, so only I-L can supply you with unit-packaging at rock-bottom prices.

Is your prime consideration quality?

Ivers-Lee makes the world's finest unit-package. The features of I-L Super-Sealtite* cannot be duplicated . . . Feather-Lite Tear and Double Diamond Tear Notches* are exclusive I-L values.

Perhaps speed of delivery is most important.

Within the 157,000 square feet of the 2 Ivers-Lee plants are unit-packaging machines capable of delivering a total of 15,000,000 units every 8 hours.

In whatever form your product may be — creams, powders, capsules or tablets — whether you want it packaged for standard sale use or sampling — Ivers-Lee can give you the *package* you want, in the *quality* you want, in the *quantity* you want, at the *speed* you want and at the *price* you want.

IVERS LEE CO.
215 CENTRAL AVENUE NEWARK, NEW JERSEY
UNIT PACKAGING

Creators of a thousand and one different types of Unit-Packages for tablets, capsules, triturates, powders, creams, and unusual products during 34 years of Packaging Service.

*Pats. and Pats. Pending.

Doin's ...

Abbott Laboratories has two new products: Selsun Jelly, to relieve itching, scaling and granulating; and Calcidrine Troches, apricot flavor, combining sedative and expectorant effects with a prolonged soothing action on the irritated mucous membrane of the throat.

Boyle-Midway has introduced a new aerosol vanishing hand creme, called Aero Lotion Vanishing Hand Creme which retails for 89 cents in the six-ounce can. It is rich and foamy, without being water, greasy or sticky, and is absorbed almost instantly.

Burroughs Wellcome & Co. (U.S.A.) Inc. has a new dosage form for its tablets of "Antepar" citrate brand of Piperazine Citrate. The 250-mg. and 500-mg. sizes are both packaged in bottles of 100 and 1,000. The product is used for the treatment of pinworms and roundworm.

Gillette Safety Razor Co. is distributing its new aerosol lather shave cream, Foamy, on a national scale.

Hynson, Westcott & Dunning, Inc. is offering "Lactinex" Granules to satisfy the pediatric demand for a more convenient dosage form of the "Lactinex" Tablets. They are highly effective in the treatment of uncomplicated diarrhea, including that due to antibiotic therapy.

Kay-Lee Co., 505 Fifth Ave., New York, has a new cosmetic product, Tweez-Aid, which is a soothing cream to be applied to the eyebrows before tweezing. Acting as an antiseptic, the cream aids in softening and loosening the roots of each eyebrow.

Lakeside Laboratories has introduced Piptal, in bottles of 100 tablets. The product is for the relief of pain and spasm of peptic ulcer.

Lederle Laboratories now has a pleasantly flavored, stable syrup preparation of Achromycin tetracycline. It is said to be ideal for oral use in all age groups, especially for younger patients who had difficulty in taking tablets or capsules.

Thos. Leeming & Co. has released Metamine with Butabarbital, for the prevention of angina pectoris attacks, or for greatly reducing their number and severity, particularly in the apprehensive, tense or anxious patient.

Eli Lilly & Co. is offering Sandril (Reserpine, Lilly) in an elixir and in two new tablet strengths. The company is adding an orange-colored 0.1 mg. tablet and a yellow 1.0 mg. tablet to give greater latitude to the physician in adjusting dosage.

Lona Duval, Inc., 123 West 64th St., New York, is distributing its medicinal cosmetic cream, LD, Creme, in new display kits containing one-ounce tubes. It is also available in four-ounce and one-pound jars. The cream helps to maintain the normal avid mantle of the skin.

The Mennen Co. has introduced Afta, a new-type after shave lotion which contains no alcohol. This cream lotion, that soothes and conditions the most sensitive skin, is for men who object to the stinging effect of the alcohol after-shave lotions.

Nestle LeMur Co. will launch its brand new "Mother's Darling" shampoo in time for retailers to tie in with the annual Baby Week promotion, April 30 to May 7. The shampoo, especially created for fine young hair, will not cause the eyes to smart. It will be given free in a special combination deal with the purchase of Nestle's popular Baby Hair Treatment.

Helene Pessl has two new Little Lady items which are being introduced in time for Easter, 1955. They are a Little Lady strawberry-flavored lip pomade and, for the Deb set, Pink Popsickle, a dainty pink lipstick with a fresh, clean flavor.

Chas. Pfizer & Co. has prepared Tetracyn-SF Capsules, a prescription specialty for stress during infection, and for all infectious disease caused by Tetracyn-susceptible organisms. Stress formula vitamins and other nutrients are included in each Tetracyn-SF capsule.

Pitman-Moore Co. has announced Serpine Tablets, an isolated crystalline alkaloid of Rauwolfia Serpentina for the treatment of emotional tension states.

Helena Rubinstein has added Violet-Tone Shampoo to her list of Color-Tone shampoos.

Schenley Laboratories has announced a new and more potent dosage form of its stimulant-anoretic, "Euphased." The new product, called Euphased-5, doubles the effect of the regular tablets.

Smith, Kline & French Laboratories has two new products: Troph-Iron, a pleasant-tasting, high-potency preparation which stimulates appetite, promotes growth and simultaneously corrects nutritional iron deficiency; and Trisocort Spraypak, a comprehensive intranasal preparation which combines hydrocortisone with three potent antibiotics.

Tinkerbell Toiletries, 48 Prospect St., Yonkers, N. Y., has created a new package, "Tinkerbell Fairy Tales," featuring three different floral fragrances. The three scents in glass torso-shaped bottles, combined with art work, are so arranged on a die-cut platform as to illustrate the fairy-tale figures—Sleeping Beauty, Cinderella and Snow White.

J. R. Watkins Co. has introduced a new fragrance line of toiletries, "In the Mood," including seven items—cologne, perfume in two sizes for dressing table and purse, bath salts, soap, sachet and dusting powder.

Winthrop-Stearns Inc. has introduced Luminal "Ovoids" to replace the table form in which the product previously had been available for oral administration.

Allen B. Wrisley Co. has added a new bouquet fragrance to Four Seasons, the lanolin-rich hand and body lotion.

control's the thing...

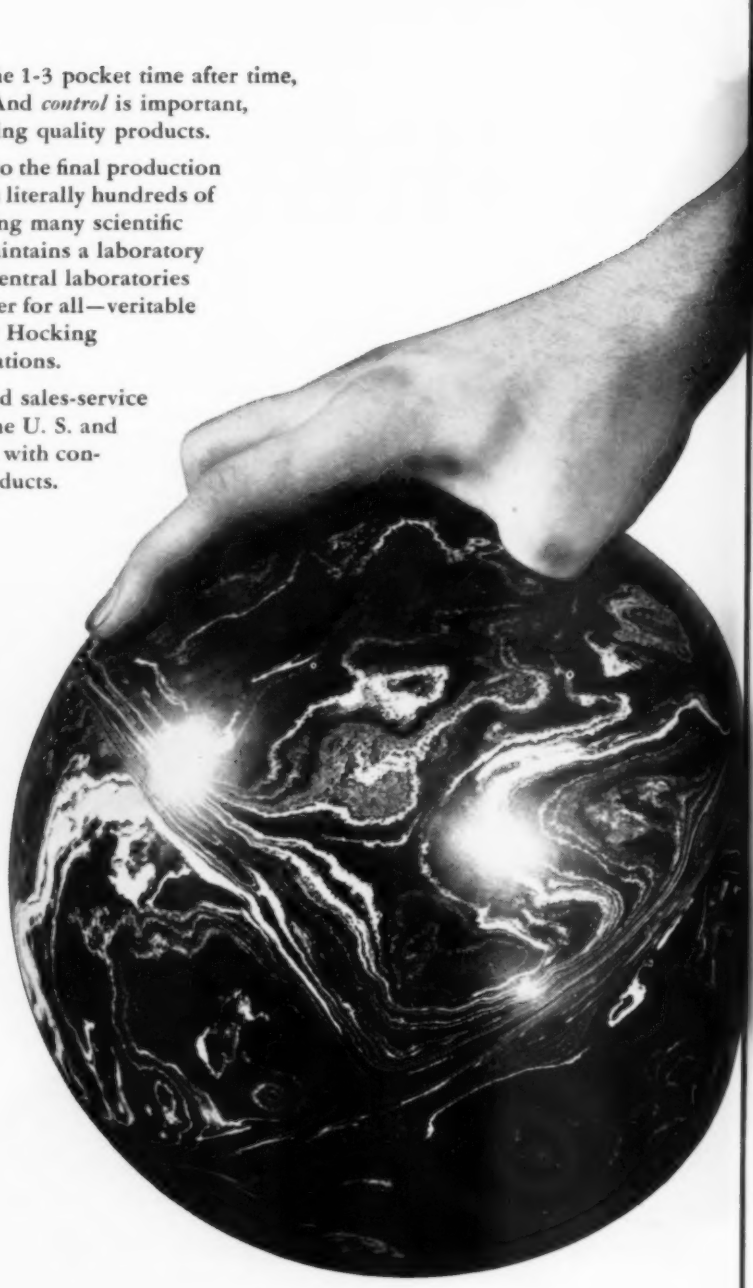
WITH ANCHOR HOCKING, TOO

It's steady *control* that rolls the ball in the 1-3 pocket time after time, picks up all the wood on tough spares. And *control* is important, too, in the manufacture of Anchor Hocking quality products.

From the selection of all raw materials to the final production line inspection, Anchor Hocking employs literally hundreds of exacting *controls,* tests and checks involving many scientific testing devices. Although each factory maintains a laboratory of its own for quality control purposes, central laboratories at Lancaster, Ohio, serve as a control center for all—veritable watchdogs that make certain that Anchor Hocking products comply with their rigid specifications.

Eleven strategically located factories and sales-service representatives in 25 principal cities in the U. S. and Canada await the opportunity to serve you with controlled high quality Anchor Hocking products.

Anchor® Metal and Molded Closures provide dependable, attractive and efficient seals—their uniformly high quality a result of exacting quality controls.



50th Anniversary

The accuracy of tools and gages are maintained by regular inspections with electronic instruments that check measurements to ten millionths of an inch.

Coatings on closures removed from test packs are regularly checked and evaluated to make certain they comply with rigid specifications.

Employing a number of essential gages, detailed checks are made regularly to maintain the uniform high quality for which Anchor Caps are noted.

ANCHOR HOCKING GLASS CORPORATION

ANCHORGLASS CONTAINERS, ANCHOR METAL AND PLASTIC CLOSURES, ANCHOR SEALING MACHINES, CARTONS AND PACKAGE ENGINEERING SERVICE . . FOR PACKERS, MANUFACTURERS, BOTTLERS OF FOODS, DRUGS, HOUSEHOLD CHEMICALS, COSMETICS, TOILETRIES, BEVERAGES, BEERS, ALES, WINES AND LIQUORS.

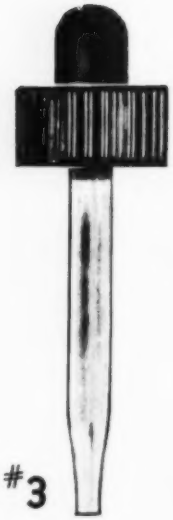
GENERAL OFFICES — LANCASTER, OHIO

New Perfection DROPPING PARTS

For Attractive Appearance . . .
. . . Perfect Performance

The New Perfection line of dropping parts is designed to meet your exacting demand for modern-looking units that function perfectly. We know that the user's satisfaction with your product may depend upon the reliability of the dropper—And, New Perfection dropping parts present your preparation at its very best.

The New Perfection reputation for excellence is maintained by use of the best quality materials, scrupulous attention to cleanliness and rigid inspection of all parts before delivery.



DROPPER GLASSES

are available in a wide variety of styles and sizes; plain or CALIBRATED in any color to mark specific dosages.

BULBS

are supplied in many styles and colors. Oil-Resisting AMEKINE synthetic rubber is used for oil preparations; natural rubber is supplied for other products.

CAPS

of plastic or metal, can be furnished in a complete range of sizes and colors.

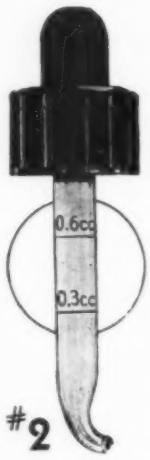
BOTTLES

in an attractive modernistic style in Amber, Blue, Green or Clear glass, are available, complete with dropping parts, in the following sizes: 2 cc., ⅛, ¼, ½, 1 and 2 oz.

DROPPER GLASSES CAN BE

CALIBRATED
IN COLOR

An inexpensive extra that adds great convenience to the use of your preparation. The dosage you desire in the color you specify is accurately and permanently printed on the dropper glass. Trade-marks and firm names can also be imprinted.



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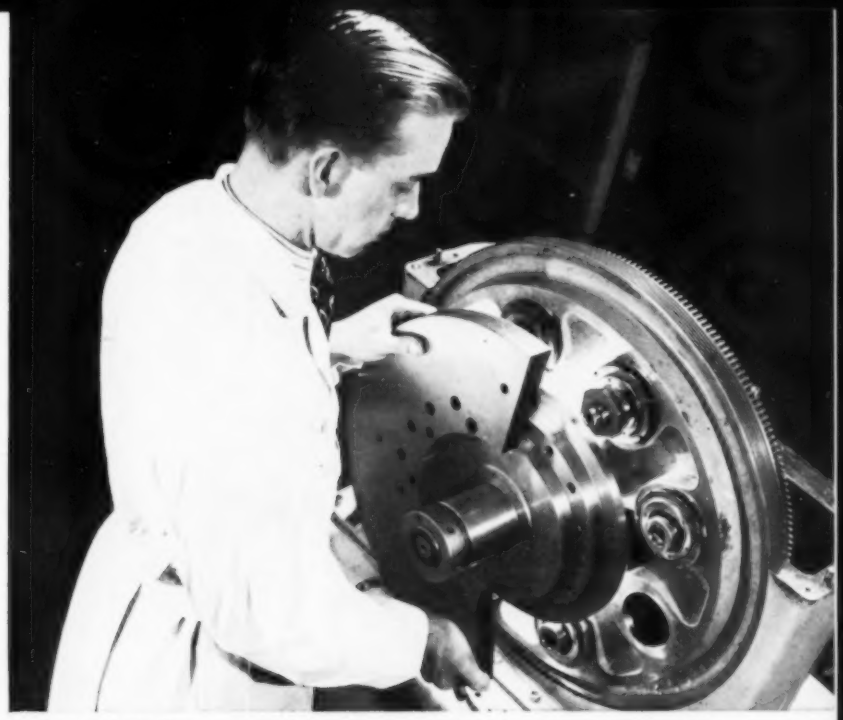
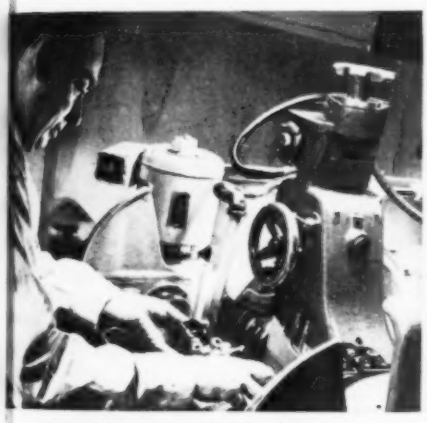
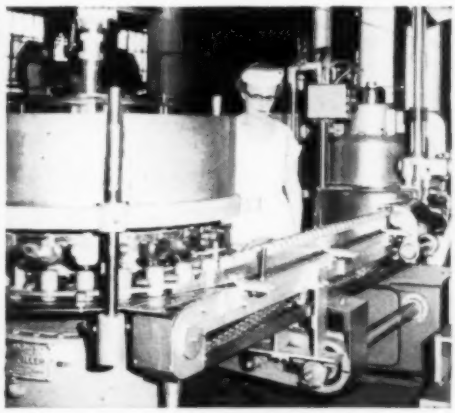


Quality is vital. Experts constantly try out new ideas . . . tear them apart to find trouble before it starts.



Research keeps quality in check
This machine accurately grinds contours on pre-hardened blanks for precision curling, knurling and threading of metal closures.



Greater speeds with better caps
Quality caps are built to take the abuse of high-speed lines. Result: greater capping efficiency.

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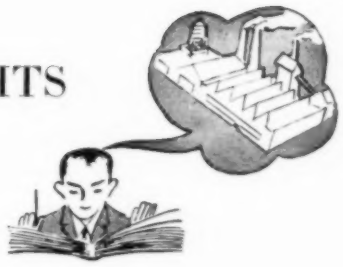
Patent THOUGHTS AND TRENDS

*by Thomas Cifelli, Jr.**

PATENT ATTORNEY



Skin Protective Silicone-Containing Cream

A water-resistant, film-forming, skin protective composition comprising a plastic residue consisting essentially of nitro-cellulose, an organopolysiloxane, and an innocuous, nitro-cellulose-compatible oil dispersed in an aqueous oil-in-water emulsion type of cream base forms the subject of U. S. 2,698,824, issued to Sergius Morgulis.

According to the patent this cream deposits a thin film on the skin, the film being impervious to irritating, corrosive and allergenic substances. Also it is said that the film is substantially water insoluble and will remain on the skin through several normal washings and through normal abrasion.

A specific example showing the preparation of the composition is given below as taken from the patient:

A skin protective ointment is prepared in the following manner: about 76 parts by weight of castor oil and about eight parts of a silicone grease (DC4 Silicone Grease, Dow Corning, which is a polydimethyl siloxane with colloidal silica filler) are thoroughly mixed. About 16 parts by weight of nitrocellulose in a 15 per cent w./v. solution of 1-3 alcohol-ether mixture is added to the oil and silicone mixture (the term w./v. indicates unit weight of nitrocellulose per unit volume in alcohol-ether solution). The mixture is stirred and gradually heated to distill off the solvent mixture. The heating is continued until the last trace of solvent is distilled off. The solid residue which remains is dried to a constant weight at 110° C.

The residue is milled into a vanishing cream base in a ratio of one part of residue to three parts of cream. The vanishing cream base is prepared by emulsifying a mixture of 25 parts of stearic acid, 10 parts spermaceti, and 65 parts of water containing 1.5 parts of 2-amino-2-methyl-1,3-propanediol.

The resulting ointment is a thick, white paste suitable for use on skin such as the hands, face, etc. The ointment is applied by rubbing a small amount on the exposed skin area desired to be protected, and the rubbing continued until the ointment is no longer in evidence on the skin area. The application of the ointment may be repeated daily without harmful effects therefrom.

Longer-Keeping Pies, Puddings and Fillings

One of the bugaboos in the prepared food product field has been the limited keeping qualities of powdered mixtures. This is particularly true in the case of starch-sugar food products used for pie fillings, puddings, and similar products.

Common and Campbell, two General Foods inventors, have come up with a suggested solution and have received U. S. patent 2,698,803 for their contribution.

They point out that the principal cause for the failure of previous starch products is the presence of citric acid in contact with starch and sugar. Industry has tackled this problem by removing the citric acid from the mixture and furnishing it to the housewife separately, usually in the form of a tablet. This leaves much to be desired, particularly where all of the product is not used completely at one time. Another objection is that the tablet may not dissolve uniformly and still another and serious objection is that many times packages are found containing no tablet whereas other packages contain two or three tablets.

The General Foods inventors suggest incorporating adipic and fumaric acids in the prepared mixture. Generally, since the package ordinarily marketed contains about 3¼ oz. of material, the inventors suggest using adipic acid from 2.25 to 3.75 grams of fumaric acid from 1.5 to 2.5 grams. However, since these figures are based merely on taste requirements, the greater the amount of acid the greater the amount of tartness, they are not iron clad.

As an example of the better keeping qualities of mixes made with the additives, the inventors point out that under the severe storage conditions of Houston, Texas, failure resulted after three months storage, whereas the same citric acid sample containing adipic acid was still good after being held for 12 months.

Carter's Rise Patent Upheld

It is known from press reports that Judge Coleman has upheld Carter Products patent, U. S. 2655480, against Colgate and other defendants, the judge ruling that the patent was valid and that Colgate had appropriated trade secrets to make pressurized shaving soap.

Unfortunately, the official opinion of Judge Coleman has not as yet been released and consequently nothing is known beyond what the press reports carried. It is entirely probable that by the time this reaches the reader the opinion will have been released but unfortunately too late for inclusion in this particular issue.

The importance of this case is widely recognized. For one thing, pressure-packed shaving products have zoomed sales-wise. Then again, it may be that there are many firms who have been participating in this field in the belief that the patent in question would not be sustained. Finally, purely from the point of view of the cosmetic industry as a whole and more especially from the point of view of that fragment of the industry that is dedicated to scientific research and the protection of the results of such research, this decision may well serve to give some much-needed assurance of the correctness of such a policy. In this connection the

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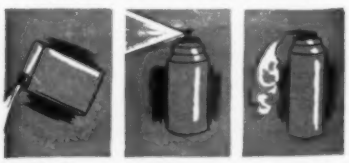

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Medical Treatments Held Patentable

For a good many years, ever since a court held in 1862 that Dr. Morton's discovery that the inhalation of ether produced insensibility to pain was not patentable, it has been quite generally accepted that methods involving treating the human body are not patentable. Indeed, for a number of years the U. S. Patent Office was very strict in its adherence to this rule. Within recent months the Patent Office has formally liberalized its views on this subject and indeed as recently as February 15th of this year granted a patent which appears to mark a complete reversal from the doctrine of the Morton case.

It may be of some interest to follow the development of this problem from its inception to the present time.

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> A discovery of a new principle, force or law operating, or which can be made to operate, on matter will not entitle the discoverer to a patent. It is only where the explorer has gone beyond the mere domain of discovery, and has laid hold of the new principle, force or law and connected it with some particular medium or mechanical contrivance by which, or through which, it acts on the material world, that he can secure the exclusive control of it under the Patent Law. He then controls his discovery through the means by which he has brought it into practical action, or their equivalent, and only through them.

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(*Continued on page 412*)

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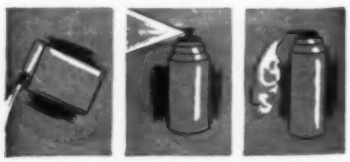

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(Continued on page 412)

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HEXAMETHYLENETETRAMINE

(HEYDEN)

Valuable to the synthetic resins industry in the curing of resins. Used as a chemical intermediate and as a hardening agent for casein, glue and other proteins; as a rubber accelerator; for explosives; for fuel tablets; in medicinals. As an amine, it finds use as a neutralizing or deactivating agent.

CONTAINERS

Hexamethylenetetramine Technical

Granular . . Multiwall paper bags, 75 lbs.; Fiber drums, 100 lbs.
Powder . . Multiwall paper bags, 50 lbs.; Fiber drums, 100 lbs.

Hexamethylenetetramine U.S.P.

(Methenamine U.S.P. Powder or Granular)
Fiber Drums, 100, 50 and 25 lbs.

FORMALDEHYDE

(HEYDEN)

Widely used in the production of phenolic, urea, melamine and resorcinol resins; for converting casein, glue and other proteins into plastic products. Increasingly important in manufacture of chemicals and fertilizers. Used in embalming fluids, disinfectants, fumigants, deodorants, and in the leather, fur, paper and textile industries.

CONTAINERS

Formaldehyde Solution N.F.

Tank car . . . . . 72,000 lbs.
Tank truck . . . . . 30,000 lbs.
Drums . . . . 475; 125; 90 lbs.
Carboys . . . . . 100 lbs.

37% Formaldehyde—Methanol Free

Tank cars . . . . 72,000 lbs.
Tank trucks . . . 30,000 lbs.

FINE HEYDEN CHEMICALS

HEYDEN CHEMICAL CORPORATION

342 Madison Avenue, New York 17, N.Y.

CHICAGO • CINCINNATI • DETROIT • PHILADELPHIA • PROVIDENCE • SAN FRANCISCO

NEWS...

Burkhart, Lever Pres.

Jervis J. Babb has been elected chairman of the board of Lever Brothers Co. and William H. Burkhart, president. Mr. Babb had been president and a director since May, 1950, while Mr. Burkhart had been executive vice-president since 1953.

This action following the retirement in February of John M. Hancock as board chairman.

Connor Advanced by Merck

John T. Connor, administrative vice-president of Merck & Co., Inc., has been promoted to the new position of vice-president and general manager of company's Merck-Sharp & Dohme International division, according to James J. Kerrigan, president. He will be responsible for assisting James H. Sharp, division president, on policy matters and for directing and co-ordinating all activities of that division.

Doble, V.P., Pneumatic Scale

Kendall D. Doble, Jr., has been elected vice-president and director of Pneumatic Scale Corp., Limited, and will direct the operations of the parts service department. He is a grandson of the company's founder, the late William H. Doble, and only son of K. D. Doble, president and general manager.

JACQUES BERSIA

Bersia with Roure-Dupont

Jacques Bersia has been added to the perfume staff of Roure-Dupont, Inc. He was previously a perfumer in the Grasse laboratories of Roure-Bertrand Fils & Justin Dupont.

Bristol-Myers Expansion

Bristol-Myers Co. is planning to expand by building a plant in the western part of New Jersey, near West Trenton, according to William M. Bristol, III, vice-president in charge of the Hillside, N. J., factory of the Bristol-Myers products division.

Preliminary work has been started on the design of a modern factory unit for the manufacture of Bufferin and any other tablet products emerging from the company's research laboratories at Hillside.

Silloway, Pres., Zonite

Charles T. Silloway has resigned as vice-president of Warner-Hudnut Corp. and president of Warner-Chilcott Laboratories division to become president of Zonite Products Corp. He succeeds Harris McLaughlin who has resigned from Zonite to engage in his own enterprise in the pharmaceutical and chemical fields.

CHARLES T. SILLOWAY

Mr. Silloway has been in the pharmaceutical field since 1939, and was vice-president of the Maltine Co. prior to its merger with Warner-Hudnut in 1952.

Dow, V.P., Bourjois, Gould

Henry O. Dow, formerly sales manager of Bourjois, Inc., and Barbara Gould, Inc., has been elected vice-president in charge of sales of both companies.

Pfizer West Coast Rep.

Reginald Robinson has been named San Francisco representative of the chemical sales division, Chas. Pfizer & Co., according to Frank F. Black, sales manager. He succeeds Edward A. Poleselli who is being transferred to the headquarters of the Pfizer International Subsidiaries, New York.

Harris Appointed by Roche

Sidney E. Harris has been appointed director of pharmaceutical production of Hoffmann-La Roche Inc. and will be in charge of the manufacture of ampuls, tablets, liquids and ointments, as well as pharmaceutical production planning. He has been with the company since 1942.

SIDNEY E. HARRIS

Nat. Can Buys Pacific Can

National Can Corp. has purchased the Pacific Can Co. in a $19 million transaction culminating a three-year reorganization and expansion program. This acquisition makes National third in the industry behind American Can and Continental Can.

Robert Solinsky, National president, will be president and chief executive officer, while E F. Euphrat, formerly president of Pacific, will be chairman of that company.

Abbott Names Personnel Dir.

Earl M. Bauby, chairman of Abbott Laboratories' personnel committee, has been promoted to director of personnel. He joined the company in 1943 as an accountant, becoming administrative assistant to the treasurer in 1945 and assistant treasurer in 1951.

Kalish, DCI Technical Editor

Dr. Joseph Kalish has been appointed technical editor of DRUG & COSMETIC INDUSTRY, resuming the position he held from 1935 to 1942. Since that time he has occupied various positions in the cosmetic and pharmaceutical industries, most recently as head of the pharmaceutical research department of Schenley Laboratories, Inc. He expects to apply his wide research and industrial experience to the investigation and evaluation of research and new products for cosmetics and pharmaceuticals.

FRANK A. SPROLE

DONALD L. SANDERS

Sardi, Luft Export Manager

Philip A. Sardi, formerly Latin-American sales manager of the H. J. Heinz Co., has been appointed export manager of the Geo. W. Luft Co. and Luft-Tangee Export Corp., according to John A. Cawley, president.

He will divide his time between the Tangee plant in Long Island City and the Central and South American markets.

PHILIP A. SARDI

D&R Buys Primrose House

Daggett & Ramsdell, Inc. recently bought Primrose House, the nationally distributed line of cosmetics. Although a few slow-moving and outmoded Primrose items will be discontinued, Daggett & Ramsdell will continue to make the company's products available throughout the country at department and drug stores.

Bogert Promoted by Pfizer

Dr. Virgil V. Bogert, a research chemist in the chemical research and development department, Chas. Pfizer & Co., Inc., has been promoted to research associate, according to Dr. Karl Bruningss, director of that department. He will report to Roy J. Taylor, manager of chemical development, Brooklyn.

Bristol Exec. Promotions

Donald L. Sanders, formerly secretary, has been elected vice-president of Bristol-Myers Co., and Frank A. Sprole, formerly assistant secretary, has become secretary.

ANDREW JOSEPHSEN

Avon Promotions

Andrew Josephsen has been appointed private brand division manager of Avon Products, Inc., according to John A. Ewald, president. He succeeds John Gabrielsen who will devote his time primarily to purchasing for Avon.

Mr. Josephsen has been with Avon for 10 years, recently as assistant to the manager of the private brands division, and previously, assistant to the vice president of Hinze Ambrosia, an Avon subsidiary since discontinued.

S & D Consolidation

The New York branch of Sharp & Dohme, division of Merck & Co., has centralized all operations in Teterboro, N. J., according to Elmer W. Metzger, director of Sharp & Dohme domestic branches.

The increased space and more modern equipment of the new location, at 111 Central Ave., is expected to improve service.

Bowen Promoted by Gair

George Bowen, with Robert Gair Co. since 1953, has been named manager of the firm's advertising department.

Witco Buys Emulsol Chem.

Witco Chemical Co. has acquired the entire capital stock of the Emulsol Chemical Corp., which had been formed recently to operate the chemical division of the Emulsol Corp.

Benjamin R. Harris will continue as president, while Solomon Epstein will serve as executive vice-president.

Witco Chemical Co., observing its 35th anniversary this year, operates 12 wholly owned or associated plants and 10 sales offices in this country and one plant and two sales offices in England. These facilities will become available to Emulsol as part of the company's activities in this country and abroad.

Guenther Returns to N. Y.

Dr. Ernest Guenther, vice-president and technical director of Fritzsche Brothers, returned to New York last month, following a three-week visit to the West Coast. During his trip, he delivered five lectures before various groups, showing his latest films.

At Mabton in Washington's Yakima Valley, he appeared before the Washington Mint Growers Association with a colored film of essential oil production in Africa. Several days later, he gave two lectures before the Oregon Essential Oil Growers League in Corvallis, Washington. The first of these was his newest travelogue covering Central and South America and the West Indies, which he presented as a Ladies Night feature at Oregon State College. At a morning meeting held the next day in the auditorium of the college, Dr. Guenther entertained several hundred guests with his latest film showing essential oil production in Europe and North Africa.

The fourth in his series was presented in San Francisco for members and friends of the Institute of Food Technologists in the big auditorium of the Merchandise Mart. Here he was introduced by Ernest Jacobs of Lyons-Magnus, Inc. His final lecture, which was under the joint sponsorship of the Southern California Section of the Institute of Food Technologists and the Flavoring Extract Manufacturers Association of Southern California, was given at the Roger Young Auditorium in Los Angeles.

"GOLD DIGGERS"

Everytime feminine hands dip into cosmetic cream, they are digging gold for its manufacturer. It's our job at Hazel-Atlas to supply you with a package (with a dressing table accessory look) that not only keeps your product at its effective best, but **really sells** *it.*

There's an H-A factory or sales office near you to service your cosmetic-ware needs.

HAZEL-ATLAS GLASS COMPANY WHEELING, W. VA.

There's a PLAX Package that will SAVE you hundreds of thousands of dollars in shipping costs

Feather lightness of Plax bottles reduces your tare weight so substantially, you can save hundreds of thousands of dollars in shipping costs.

You get other valuable bonuses, too. Rainbow-choice of colors . . . an almost unlimited selection of shapes and surface finishes . . . the dispensing method best suited to your product, whether it's a spray, drop-by-drop, controlled pouring or direct application. Consult Plax for the best in convenience packaging.

PLAX CORPORATION

P. O. BOX 1019, HARTFORD, CONNECTICUT

IN CANADA: Plax Canada, Ltd., Montreal and Toronto

PLAX

In plastic bottle packaging, only Plax offers continuous research, complete design service, and long experience.

Appointed by N. J. Machine

Robert J. Geiger and William J. Mahota, Jr., have been appointed to the World Labeler sales engineering staff of Economic Machinery Co., division of Geo. J. Meyer Manufacturing Co. Mr. Geiger will be located in the Chicago office and Mr. Mahota, in the St. Louis office.

Sixty Years for MMR

In calling attention to the fact that Magnus, Mabee & Reynard, Inc. is celebrating its Diamond Jubilee, having completed sixty years of activity since its inception in 1895, Bernard Jeffs, Director of Advertising of the firm points out that the outstanding accomplishment of the essential oil industry since the turn of the century has been to make life more agreeable—more livable—for countless millions of people through development of inexpensive perfumes, cosmetics and toilet goods, new flavors for many varieties of foods and sweets, new flavors also to make medicines palatable, and pleasant odoriferous compounds to make pleasant all manner of industrial products.

MM&R had its beginning as McKenzie Bros. & Hill at 32 Water Street, New York, in which the founder of MM&R, Percy Cecil Magnus Sr. was a partner. It was Mr. Magnus Sr. who was mainly responsible for the early success of the firm. He gave the firm its famous maxim, Strength, Quality and Dependability. The growing firm became American headquarters for a number of leading European producers and assumed its present corporate name following a merger with the National Essential Oils Distilling Company in 1907.

At the climax of a period of phenominal growth when MM&R was busy filling orders for the U. S. Army and Navy and for other allied governments, Mr. Magnus Sr. died suddenly on November 16, 1916. He was succeeded in the presidency by his eldest son, Percy Cecil Magnus Jr., who was aided by his two brothers, Joseph Baird Magnus and Robert Burke Magnus, who joined the organization in 1916 and 1918 respectively. A policy of planned expansion in domestic and world markets was inaugurated.

Steady increase in the volume of MM&R imports of basic oils and flavor materials from all parts of the world marked the years following World War I. The Company consolidated its relations with primary producers in every important center. Extensive acreage was acquired in the United States, notably for production of dill weed, wormseed and peppermint oils. The long-range program was successful and in 1938 MM&R moved its laboratories, manufacturing equipment, and warehouses to a group of six-story, ultra-modern buildings, with headquarters at 16 Debrosses Street, New York.

During World War II, faced with wartime shortages of essential oils from European and other overseas sources of supply, the Company developed important replacements, thereby helping to preserve the identity of many American brands of perfumes and flavored products. So dependable and economical were these replacements that their use paved the way for still more extended application in the postwar industrial economy. Today, after sixty years successful operation in domestic and world markets, MM&R services over fifty industries in all parts of the world.

Going through the MM&R laboratories and warehouses one sees raw materials from all parts of the world in their unique styles of packaging. One sees in a single day 10,000 pounds of these materials being carefully examined to determine whether or not they should be further processed or refined to ensure rigid conformity to the highest standards of quality.

MM&R has contributed greatly to the development of Essential Oil Specifications, many of which are now in general use. Through the activities of the Essential Oil Association of U. S. A., MM&R scientists have aided in the revision of USP and NF standards.

One of the Magnus laboratories which have contributed importantly to flavor progress in the pharmaceutical industry.

PERCY C. MAGNUS

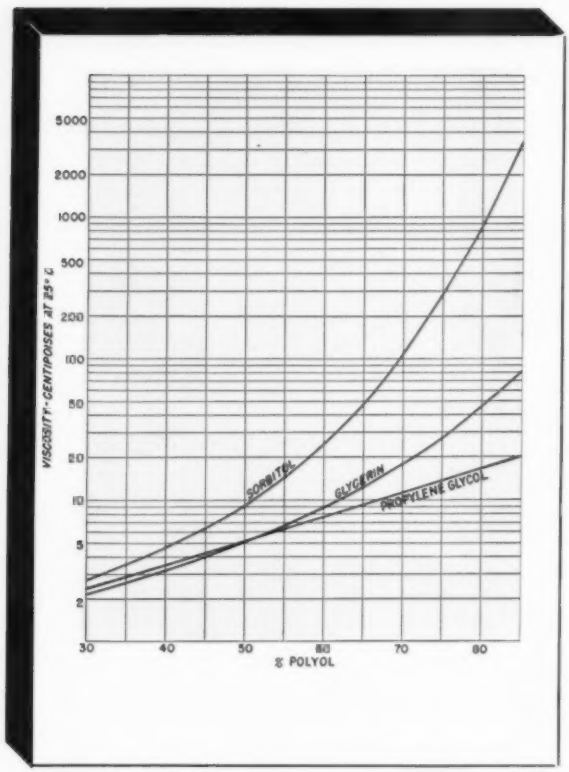
J. B. MAGNUS

R. B. MAGNUS

ATLAS chem-memos

CHEMICALS DEPARTMENT
ATLAS POWDER COMPANY, WILMINGTON 99, DELAWARE
ATLAS POWDER COMPANY, CANADA, LTD., BRANTFORD, CANADA

HOW SORBITOL ADDS "BODY" TO LIQUID PREPARATIONS



Many pharmaceutical manufacturers have found that the high viscosity of sorbitol solutions, by comparison with glycerin solutions, enables them to gain a degree of "body" obtainable with no other vehicle. This bodying action of sorbitol has been widely adapted in the production of tonics, syrups, elixirs, and other medicinal solutions and dispersions where a more soothing "feel" in the oral passages and improved palatability are desired.

The accompanying chart illustrates the comparison between the viscosity of sorbitol solutions and those of glycerin. Note that due to the higher viscosity of the sorbitol solutions, *considerably less sorbitol* is needed to gain equivalent "bodying action." To make a solution measuring 10 centipoises, for example, requires only 51% sorbitol . . . while glycerin would have to be used at a concentration of 62%.

Since sorbitol is derived from corn sugar, by direct hydrogenation, its price is low, steady, and shows a consistent downward trend throughout its manufacturing history. Its high purity, uniformly attained by Atlas statistical quality control methods, makes it valuable for use with such sensitive ingredients as vitamin B_{12}. Sorbitol's chemical stability, resistance to fermentation by oral micro-organisms, and absence of irritating effect on oral tissues also contribute to its acceptance in pharmaceutical preparations.

Sorbo® sorbitol solution, recommended for this usage, meets the Toilet Goods Association standards for "Aqueous Sorbitol Solution" and conforms to the monograph on "Sorbitol Solution" scheduled for National Formulary X. Free experimental samples and technical service are available on request.

Tips on Sun-Tan Lotions

The effectiveness of some sun screen oils is markedly reduced under the alkaline conditions present when soap is used as the emulsifier. Atlas nonionic emulsifiers permit preparation of neutral or slightly acidic emulsions which have negligible effect on the active ingredients.

Our booklet, "A Guide to Cosmetic and Pharmaceutical Preparations" gives tips and formulas for using blended Atlas emulsifiers in both O/W and W/O suntan preparations, as well as many other types of products. Write today to Atlas for your copy.

MAKING WASHABLE OINTMENTS

Atlas has assisted several manufacturers in the formulation of new or improved ointments and bases which are made *washable* by means of Atlas emulsifiers, so that they do not permanently stain clothing or bedclothes, and can be readily removed from tender or irritated skin.

Either the waterless melt or emulsion type of product can be made washable through choice of the proper type and amount of Atlas emulsifier. For example, in compounding a melt-type product, the addition of a hydrophilic emulsifier, such as one of the Atlas Tween® series, can give the product good water-dispersibility. In making washable emulsion-type ointments or waterless bases to which water will be added later, a lipophilic emulsifier such as one of the Span® products may be incorporated with the hydrophilic emulsifier to increase the stability of the final emulsion against extremes of heat or cold in storage.

For further data and typical formulas, write on your company letterhead for a copy of "A Guide to Cosmetic and Pharmaceutical Formulations with Atlas Products."

NICHOLAS LENTINE

Buys Half Interest in Ultra

Witco Chemical Co. has acquired a half interest in Ultra Chemical Works, Inc., of Paterson, N. J. No changes in personnel are anticipated. Ultra is a large independent producer of industrial and household detergents, wax emulsions and specialty chemicals for the textile industry, and many highly specialized synthetic organic chemicals. The principal plant is at Paterson, and additional plant facilities are maintained at Joliet, Ill., and Hawthorne, Calif.

Gelston with Pitman-Moore

Dr. Robert H. Gelston, formerly with Hoffmann-La Roche, has been named market coordinator by Pitman-Moore Co., according to S. E. Ruch, sales manager.

Pyle Advanced by S & D

Charles B. Pyle has been appointed director of sales and marketing for Sharp & Dohme, division of Merck & Co., Inc., according to John G. Bill, vice-president and general manager. He will be responsible for all phases of sales, marketing, distribution and advertising.

He was formerly director of field operations.

Maschmeijer Expansion

A. Maschmeijer, Jr., Inc. has expanded its manufacturing facilities and special research laboratory, recently moved from New York City to the Newark plant.

Consolidation of the special laboratory and greater production facilities, states Mrs. S. E. Ingram, president, will result in better all-around service. The laboratory is ready to solve perfumery problems quickly and efficiently and develop specific aromatic products to meet individual requirements.

CSC Appointments

William J. Shea has been assigned to the Chicago district office of Commercial Solvents Corp. He had formerly been with E. F. Drew & Co.

Nicholas Lentine, who has been with CSC since 1949 handling pharmaceuticals sales, has been assigned to the Detroit district office.

Charabot in New Quarters

Charabot & Co. has moved to new office and warehouse facilities at 114 East 25th St., New York 10. The telephone number is ORegon 4-0510.

Eddy, Gen. Mgr., Globe Tube

Maxson A. Eddy, formerly head of the Eddy Glass Co., has been appointed general manager of the Globe Collapsible Tube Corp. He succeeds Clement M. Brown, Jr., who has joined the international division of Olin Mathieson Chemical Corp. in an executive capacity.

MAXSON A. EDDY

Parke, Davis Promotions

Dr. A. R. Taylor has been promoted laboratory director in virology of Parke, Davis & Co., while Dr. J. M. Vandenbelt has become laboratory director in physical chemistry.

N. Y. Cos. Chemists

Michael A. Stanton, chairman of the New York Chapter, Society of Cosmetic Chemists, states that the local group has almost 140 members and that it has been welcomed enthusiastically by the cosmetic chemists of the Metropolitan area. Gabriel Barnett, program chairman, has set up a program of speakers on subjects of particular interest to the cosmetic chemist.

Speaker at the February 23rd meeting was Dr. W. D. Celmar, research supervisor of Chas. Pfizer & Co., who discussed "The Chemistry of Lecithin."

WILLIAM J. SHEA

Ass't Sales Mgr., Schenley

Louis R. Rofrano, metropolitan New York district manager for Schenley Laboratories since 1946, has become assistant sales manager, according to Arthur F. Gormley, vice-president in charge of sales.

Appointed by Nat. Aniline

John K. Boykin has been named resident manager at Charlotte, N. C., for National Aniline division, Allied Chemical & Dye Corp., succeeding Julian T. Chase who has retired after fifty years of service. He was previously resident manager at Atlanta, Ga., where he now has been succeeded by T. M. Ferguson.

Mr. Ferguson had been in charge of the National Aniline division technical service laboratory in Atlanta.

New Abbott Office, Boston

Abbott Laboratories opened a new sales and distribution center for New England in the Boston area in early January, at 110 A Street, Needham. The former Boston branch at 679 Beacon St. has been closed.

The new office occupies a 60,000-square-foot area and contains 20,500 square feet of warehouse space and 2,700 square feet of air-conditioned offices and employee facilities.

C. C. McGoldrick is Abbott's Boston branch and district sales manager, while Gilbert Way is office manager.

Daggett Joins 25-Yr. Club

Ross LeB. Daggett became the 57th member of the 25-Year Club of George Lueders & Co. on February 1. He was the guest of honor at a dinner party celebrating the occasion during which he was presented a service pin and wrist watch.

Mr. Daggett is vice-president in charge of production and chief chemist of the company.

PHARMACEUTICAL

Flavors

Improvement in the inherent unpleasant taste of many pharmaceuticals can be effectively accomplished through modern flavor research.

Simply "masking" the unpleasantness is not always the answer. In the modern treatment, logical and congruous flavoring constituents are added to the basic unpleasant note, turning it into a component of an over-all palatable flavor.

Our experience in treating problems of taste in pharmaceuticals may be of considerable help in effecting an improvement in your product. All medicinal flavor problems are considered individually by the pharmaceutical section of the van Ameringen-Haebler flavor research laboratories.

We solicit the more difficult taste problems confronting manufacturers of pharmaceuticals and proprietary medicines.

VAN AMERINGEN-HAEBLER, INC.

521 WEST 57th STREET • NEW YORK 19, N. Y.

makers of Alva flavors

ANDRE MATHIEU

CHARLES T. HARRELL

IRVIN R. LINNARD

Mathieu with Roure-Dupont

Charles Edick, representative of Roure-Dupont in Chicago for 17 years, has retired because of ill health, according to J. d'Aigremont, president. He has been succeeded by Andre Mathieu who has represented various French firms in the United States since his arrival here three years ago.

To Represent Richford Corp.

The Richford Corp. has appointed Buckingham Associates, 7634 Rogers Ave., Chicago, to represent them in Illinois, Indiana, Minnesota, Wisconsin and Iowa. They will handle the Richford line of Spillproofs, glass bottles, brass caps, goldcote and silvercote caps, and Touch-N-Flo dispensers.

Mr. and Mrs. Eaton in S.A.

M. C. Eaton, president of the Norwich Pharmacal Co., and Mrs. Eaton, recently sailed for South America. Mr. Eaton is visiting a number of South American drug firms which manufacture and distribute certain Norwich products within their countries.

Evyan to Move in Spring

Parfums Evyan, Inc. has purchased the four-story and basement building at 338-350 East 35th St., New York. Personnel in all departments, numbering over 200 people, will move to this location in the Spring, following the installation of an additional elevator and the construction of a penthouse laboratory overlooking the East River.

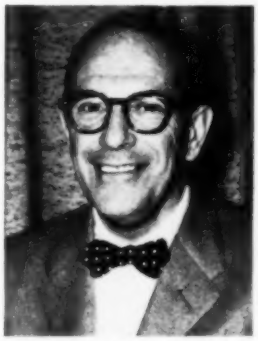
This building will approximately double Evyan's present facilities for manufacturing, laboratory, display and storage purposes. Spacke will also be available for experimental research conducted by a subsidiary, Chemical Research and Manufacturers, Inc., headed by Dr. Walter Langer.

Bristol Exec. Promotions

Richard A. Anderson, formerly sales manager, has been appointed director of trade relations, a new department. He has been succeeded in his former position at Bristol Laboratories by Charles T. Harrell.

Bennett Joins D&O Sales

Ira Bennett has been added to the sales staff of Dodge & Olcott, Inc. He has been in the trade for more than 25



IRA BENNETT

years and has traveled extensively in the South and eastern part of the country, spending the past four years in the Chicago area. He will work as a special representative out of the New York office.

Selected for Management Course

Carl Johnson, U. S. and Canadian sales manager of Parke, Davis & Co., is attending the 27th advanced management program at Harvard University Graduate School of Business Administration from February 23 through May 20. He is among approximately 170 executives from more than 100 leading companies who are taking the 12½-week program.

Linnard in Hudnut Post

Irvin R. Linnard has been named vice-president for operations of the Richard Hudnut division of Warner Hudnut, Inc. He will supervise all phases of cosmetic purchasing, manufacturing, packaging and distribution.

Burton Retires, Pkg. Institute

Dr. L. V. Burton, executive director of Packaging Institute, Inc., since 1947, retired from active direction of the Institute on March 1. He will remain on the staff of the organization as a part-time consultant in charge of editorial activities.

During Dr. Burton's term of office the Packaging Institute has tripled in size.

Charles A. Feld, associate director of the Institute since November, 1954, has taken over the administrative responsibilities. He had formerly been merchandising manager of Cecil & Presbry, Inc.

Dill Increases Business

Russell L. Trautman, president of the Dill Co., pharmaceutical manufacturer, recently announced a 46 per cent increase in over-all business for January, 1955, over the same period last year.

Cutter Buys Ashe Lockhart

Cutter Laboratories has purchased the veterinary biological firm of Ashe Lockhart, Inc., according to Dr. Ashe Lockhart and Dr. Robert K. Cutter. A 28-year-old firm, Ashe Lockhart sells a complete line of veterinary biological products to graduate veterinarians only.

Cutter and Ashe will continue to operate as separate organizations, and the latter's present operating personnel will be continued under the direction of the present general manager, Joseph Knappenberger, D.V.M., who will head the company as its new president.

Givaudan gives you experienced help in perfuming men's toiletries

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The market for men's toiletries is a live, growing market . . . rich with opportunities for smart promotion. And the key to this market is fragrance . . . fresh, original scents that rouse masculine interest and respect, and stimulate men's natural pride in better grooming.

Givaudan has developed many fragrances that meet the challenge of this market . . . and we are prepared to help you develop special new scents that heighten and broaden the appeal of your products. We are also prepared to give you experienced counsel in solving any perfuming problems that may arise in the use of aerosol mediums, polyethylene containers and other packaging materials.

GIVAUDAN

Better Perfume Materials Through Constant Research and Creative Ability

GIVAUDAN-DELAWANNA, INC.
330 West 42nd Street • New York 36, N. Y.

Branches: Philadelphia • Boston • Cincinnati • Detroit
Chicago • Seattle • Los Angeles • Toronto

Reynaud Exec. Visits U. S.

Dr. Guido Sonderegger, director of exports for H. Reynaud & Fils, is visiting this country in order to arrange for representation in the United States and Canada for his company. The firm has had no official representative here for the past 10 years.

Zeni, Sales Mgr., Ariz. Chem.

Henry C. Zeni has been named sales manager of Arizona Chemical Co., according to R. E. Sumner, president. The firm is jointly owned by American Cyanamid Co. and International Paper Co.

He will report to A. Scharwachter, vice-president.

McClelland Promoted by Lilly

Francis W. McClelland has been promoted by Eli Lilly & Co. and now heads the research services department. He succeeds D. F. Teeters who was recently named manager of administrative services for the firm's new agricultural products division.

FRANCIS W. McCLELLAND

Miller with Grove Labs.

Alan B. Miller, Jr., until recently creative director of the Toni account at Weiss & Geller, Inc., has joined Grove Laboratories, Inc., as head of a newly

ALAN B. MILLER, JR.

created new products department, according to R. A. MacDonnell, vice-president in charge of sales and advertising. He will be in charge of current new Grove products as well as planning for future new product development.

MARSHALL WARD

S&D Executive Appointments

Frank Walton has become field operations director, Sharp & Dohme, Eugene L. Kuryloski, marketing director, and John A. Wells, advertising director, according to Charles B. Pyle, director of sales and marketing.

Mr. Walton was formerly manager of sales training; Mr. Kuryloski, assistant to the director of field operations; and Mr. Wells, director of merchandising and promotion of Merck & Co.

Bicknell with Colton

Albert V. Bicknell has been appointed West Coast district manager of Arthur Colton Co., according to Kenneth B. Hollidge, executive vice-president.

Named Stokes Adv. Mgr.

Jay Steiner has been appointed advertising and sales promotion manager of F. J. Stokes Machine Co., according to A. A. Hutchings, vice-president in charge of sales. He was formerly assistant advertising manager.

JAY STEINER

N. J. Zinc Promotions

G. F. A. Stutz, manager of technical service, has been promoted to manager of the pigment division of the New Jersey Zinc Sales Co. He succeeds F. W. Jones who has become assistant to the vice-president. Mr. Stutz will continue to supervise the activities of the technical service unit.

Roberts, S.S.S. Bd. Chairman

Warren Roberts has been named chairman of the board of directors of the S. S. S. Company, according to Lamar Swift, executive vice-president. Henry J. Lamar IV has been promoted to president. Both men are great-grandsons of S. S. S. founders. Mitchell C. King has been named vice-chairman of the board.

Ward with Colgate

Marshall Ward has been appointed manager of a newly formed toilet article research section in the market research department of Colgate-Palmolive Co. He had formerly been director of market research of the Vick Chemical Co.

Kimble Glass Appointments

A. T. Anderson, formerly New York branch manager of Kimble Glass Co., has been named assistant sales manager of the containers and accessories division in Toledo. Edmund D. Bowes, formerly manager of the Philadelphia office, succeeds Mr. Anderson as New York manager.

Henry L. Carlson, New York sales representative, replaces Mr. Bowes as Philadelphia sales representative.

Appointed by S & D

Dr. William A. Bittenbender, associate director of the Merck Chemical control division, will become technical assistant to the vice-president and general manager of the Sharp & Dohme division, according to John G. Bill, vice-president and general manager on April 1.

Named V.P., Pfizer Corp.

Richard C. Fenton has been elected vice-president of Pfizer Corp., foreign trade subsidiary of Chas. Pfizer & Co., Inc., according to Charles A. Specht, president. Mr. Fenton, who has been regional director for Europe since August, 1952, will continue to supervise Pfizer's pharmaceutical operations in that area.

Re-elected Pres., Exchange

Walter P. Miller, president of Walter P. Miller Co., Inc., has been named president of the Philadelphia Drug Exchange for the second consecutive year.

Mich. Chem. Ass'n Elections

Robert F. Watt, Western Solvents & Chemicals Co., has been elected president of the Chemical and Allied Industires Association of Michigan for 1955. Additional officers are M. Lorne Morrison, R. P. Scherer Corp., vice-president; William F. Harlton, Jr., Detroit Veterinary Supply Co., treasurer; and J. Glenn Hicks, Monsanto Chemical Co., secretary.

The executive committee is made up of Clair J. Brissette, Parke, Davis & Co.; Hugh D. Kitchen, Park Chemical Co.; and M. R. Polley, Mallard, Inc.

Toni Expansion

The Toni division of the Gillette Co. has purchased the building in St. Paul, Minn., that houses Toni's factory operations. This is another step in Toni's expansion of production facilities, according to R. N. W. Harris, founder and president.

Since its beginning in 1944, Toni has produced more than 200 million home permanent wave kits for use in this country and abroad. The company has also added the following products to its line: White Rain Lotion Shampoo, Pamper Shampoo, Tame Creme Rinse, Deep Magic Facial Cleansing Lotion, Spin Brand Curlers and Viv Lipstick.

Gamage in MMR 25-Yr. Club

Shockley C. Gamage, assistant to the president, Magnus, Mabee & Reynard, Inc., was honored by the company at a sales and staff dinner January 22 in the College Room of the Hotel Sheraton-Astor. The event marked his entry into the MM&R Twenty-Year Club. After receiving his certificate of membership from the Club president, Henry J. Becker, Indiana representative, Mr. Gamage spoke of the enormous advances of MM&R during the past 20 years.

He joined the company in 1934 as a sales representative and during his early years covered both midwestern and eastern territories in the United States.

Following his entrance into the Main Office in 1939, he played an active part in the company's export activities during World War II and became assistant vice-president in 1949 and assistant to the president in 1953.

Carbide Appointments

DeFrance Clarke, Jr., has been appointed assistant manager, fine chemicals division, of Carbide & Carbon Chemicals Co., according to John A. Field, vice-president. David S. Alcorn has become product manager in the same division and will be responsible for the market development of aryl chemicals.

Mr. Clarke was formerly a product manager in the fine chemicals division, and Mr. Alcorn was transferred in 1953 to the division to work on the market development of aryl chemicals.

Gen. Mgr., Crown & Closure

Harvey T. Stephens, division manager of industrial relations, has been

HARVEY T. STEPHENS

appointed general manager of the Crown & Closure division, Crown Cork & Seal Co., according to Russell Gowans, president. He fills a position made vacant by the recent death of Fred J. Wood.

Dempsey Named by Prentiss

Frank E. Dempsey & Co. has been appointed distributor by Prentiss Drug & Chemical Co. for its complete line of insecticides, rodenticides and botanicals. Mr. Dempsey recently formed his own company, having formerly been sales manager of the chemicals department of Standard Chemical Co. Limited.

Dean at P-D Manila Lab.

Royal G. Dean, member of Parke, Davis & Company's overseas division, departed in late January for the Philippines where he is assisting in the operations of the firm's newly opened branch office and laboratory. He is staying in Manila, while Dr. Pedro Katigbak, general manager, is visiting the home office and participating in an American Management course in New York.

Mr. Dean, formerly Parke-Davis representative in Honolulu, will return to the United States in May.

Lindquist, Hyland Sales Mgr.

George I. Lindquist, sales representative of Hyland Laboratories, has been appointed sales manager, according to G. Preston Snow, president.

Winarick Expansion

Ar. Winarick Inc., which moved its manufacturing facilities and laboratory to New Brunswick, N. J., last year, is now engaged in a large expansion program. The firm recently purchased the Lorr Laboratories of Paterson, makers of Dura-Gloss nail polish, and will move the entire Lorr operation to New Brunswick, according to Nat Winarick, secretary. He expects to increase the number of employees from the present 40 to 100 by the end of 1955.

Arthur Winarick is chairman of the board of the company, which also maintains a plant in Windsor, Ontario, Canada. Jules Winarick is president and, in addition to Nat Winarick, other officers are Dave Patsiner, treasurer, and Joseph A. Gallagher, vice-president.

Cutter Appointments

Dr. Ralph B. Houlihan, formerly director of biological research, has been appointed associate director of research at Cutter Laboratories, according to Dr. Howard M. Winegarden, vice-president for research.

Russell C. Moore has been named research representative and will be in charge of field testing Cutter's new pharmaceutical and hospital products.

Mr. Moore succeeds F. R. Finney who was recently named western division manager.

Kronish, a Grandfather

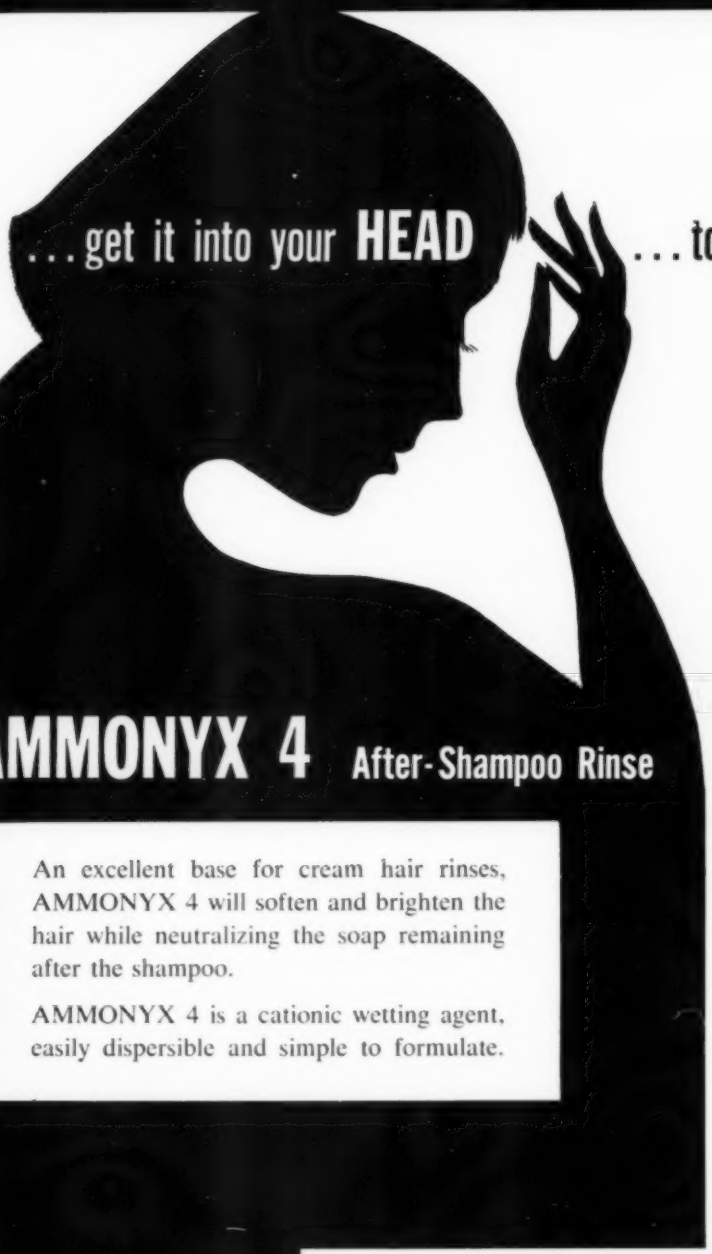
Louis Kronish, president of Strand Cosmetics, Inc., has just become a grandfather; the new granddaughter's name is Robin Ann.

R. Bruce MacFarlane

R. Bruce MacFarlane, sales manager of the closure division of Anchor Hocking Glass Corp., died on February 4 at his home, 201 East Wheeling St., Lancaster, Ohio. He was 53 years old.

He had been sales manager for the Aridor Company, Chicago, before he joined Anchor Hocking as closure division sales manager in 1938.

Mr. MacFarlane is survived by his wife, Marian; one step-daughter, Mrs. P. M. Nickerson; and two sisters, Mrs. W. C. Snow and Mrs. B. D. Flewell.



. . . get it into your HEAD . . . to get it out of their HAIR

AMMONYX 4 After-Shampoo Rinse

An excellent base for cream hair rinses, AMMONYX 4 will soften and brighten the hair while neutralizing the soap remaining after the shampoo.

AMMONYX 4 is a cationic wetting agent, easily dispersible and simple to formulate.

The increasing importance of the hair preparations market makes it imperative for alert manufacturers to insure the greatest effectiveness for their products—for a greater share of the market.

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Now is the time to formulate your after-shampoo rinses for increasing popularity in both home and beauty parlor use. The ONYX Technical Service Staff will be glad to assist you with their formulation, as well as the development of any other product for the shampoo and cosmetic field.

ISOTHAN Q-15 For Dandruff Control

Possessing superior fungicidal properties, ISOTHAN Q-15 has proven itself a most effective agent in the control of the troublesome dandruff problem, particularly in after-shampoo rinses.

ISOTHAN Q-15 has complete and rapid wetting and penetrating properties, is non-irritating to normal skin, water soluble and has its own characteristic odor.

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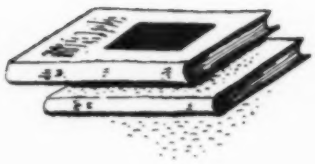


Trade Literature

Booklet on Isopropanol

A new 16-page technical booklet (F-8731) on isopropylanol has been issued by Carbide and Carbon Chemicals Company, 30 East 42 Street, New York 17. Included in the booklet is information on uses, physical and physiological properties, shipping data, specifications and constant-boiling mixtures. Also thirteen graphs on vapor pressures, specific gravities, freezing points, viscosities, and other important physical properties.

The Company has also issued a new 12-page booklet (F-8140) on ethyl acetate. This booklet contains information on ethyl acetate similar to that offered on isopropanol in the booklet mentioned above.

Reilly Chemical Index

The Reilly Tar & Chemical Corporation has issued the second edition of the Reilly Chemical Index, which contains information on over 100 organic compounds, including 13 new chemicals made available since the previous edition published two years ago. The Index is a concise presentation of actylenic alcohols, fused ring heterocyclics, hydrocarbons, phenols and substituted phenols, and pyridine and pyridine derivatives.

Automatic Proportioning System

A proportioning system that permits remote dialing of individual ingredient weights is pictured and described in a new 28-page two-color booklet (Bulletin 0351) issued by Richardson Scale Co., Van Houten Ave., Clifton, N. J. Besides describing how Richardson's Select-O-Weigh system works, the bulletin details eleven installations in many varied operations. Design and operating characteristics of the automatic proportioning system are explained.

Doubling Warehouse Capacity

How to Double Your Warehouse Capacity, is the title of a 16-page booklet (Catalog No. 700) issued by the Frick-Gallagher Mfg. Co., Wellston, Ohio. Purpose of the booklet is to show that, while there can be no single fixed formula for greater warehouse economy, sizable savings of space and time are nearly always possible through better use of existing facilities and, where advisable, through the use of special storage equipment.

Guide to Fatty Acids

The Wilson-Martin division, Wilson & Co., Snyder Avenue and Swanson Street, Philadelphia 48, has issued a third edition of its Guide to Fatty Acids. This edition is considered a decided improvement over previous issues and carries an unusual amount of information valuable to technical men and users of various types of fatty acids.

This Guide is designed so that the specifications and composition of any of the fatty acids appear when a dial is turned. Temperature conversion information and color conversion figures are similarly obtained.

Hospital Pharmacy Designs

Parke, Davis & Company, Detroit 32, Mich., has issued a 20-page, two-color booklet entitled Portfolio of Designs of Hospital Pharmacies. It contains working floor plans of 23 active pharmacies serving hospitals having from 80 to 1,500 beds.

Sodium Phosphates for Industry

The inorganic chemicals division, Monsanto Chemical Company, St. Louis, has issued a 40-page, two-color booklet on Sodium Phosphates for Industry. The booklet gives complete information concerning the long list of phosphates produced by the company, including uses, specifications, properties, applications, and shipping information.

Sesquicarbonate of Soda

A comprehensive booklet on sesquicarbonate of soda, entitled Snowflake Crystals and Snowfine, is offered by the Solvay process division of Allied Chemical & Dye Corporation, 61 Broadway, New York 6. Fully illlustrated with photographs, tables and graphs, the booklet covers such physical and chemical properties of sesquicarbonate of soda as solubility, bulk densities, rate of solution, water softening ability, pH of solutions, acid neutralizing values, buffering action, stability and storage qualities. Also described are the advantages of both Snowflake and Snowfine in mixtures with other dry, granular materials.

Stokeswrap Automatic Machinery

A new 8-page folder in color (Folder P-801) issued by Stokes & Smith Company, 4992 Summerdale Avenue, Philadelphia 24, explains and describes the application of Stokeswrap automatic machinery to achieve high-speed, low-cost packaging of a wide variety of products from foods to drugs to cosmetics. Feed mechanisms to handle liquid, semi-liquid, granular, and powdered products are illustrated and described along with listings of typical products now being packaged by these machines.

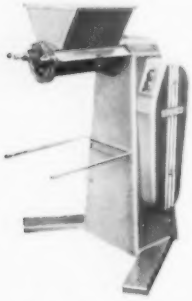
Choline Pantothenate

Dawe's Laboratories, Inc., 4800 South Richmond Street, Chicago 32, has issued an 11-page technical bulletin on Choline Pantothenate on which the company has a patent. The product is described as a compound combining the biological activity of two vitamins, choline and pantothenic acid, and is said to be a promising chemical for nutritional and medicinal investigations.

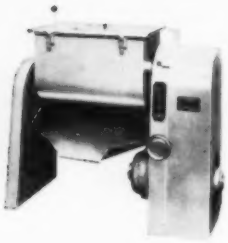
Hydrogen Peroxide Vapor

The interesting possibilities that exist for the technological use of hydrogen peroxide vapor and means of vapor generation are described in Bulletin No. 62, available from the Becco Chemical Division, Food Machinery and Chemical Corporation, Station B, Buffalo 7, N. Y. Presented is a summary of information on hydrogen peroxide vapor illustrated by three tables and two graphs, as well as a bibliography.

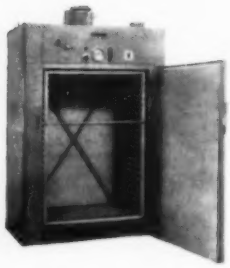
STOKES PHARMACEUTICAL AUXILIARIES



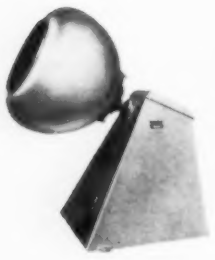
The Stokes Oscillating Granulator breaks up moist aggregates for drying, and dried aggregates for final compression to tablets.



The Stokes Mixer blends basic tablet materials or mixes lubricating powders and flavoring oils with granulations.



Stokes Drying Closets with carefully channeled hot air, are used for drying granulations, salts, rouge and other materials. Vacuum shelf dryers and vacuum freeze-dryers are also available for handling products sensitive to both heat and oxidation.



Stainless steel or spun copper coating pans are available in 16- to 42-inch diameter with capacities of 15,500 to 270,000 5-grain tablets. Polishing heads are made with removable canvas drums, 28 or 36 inches in diameter, and are interchangeable with metal coating pans.

"All-Stokes" Equipment in Clorets Production Line

Stokes' participation in the production of Clorets Candy Mints containing chlorophyll goes "back of the beginning". Tablet design, formulation, and test procedures for production of this popular product were worked out by Stokes Advisory Service in cooperation with American Chicle Company's experts.

From mixing and preparation of ingredients to making of the finished product on four Model DD-2 tabletting presses, Stokes pharmaceutical equipment maintains the needed high and steady production of perfectly formed tablets.

For 50 years pharmaceutical manufacturers throughout the world have shown confidence in "all-Stokes" production lines and the skills of Stokes Advisory engineers.

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Management Forum

by Francis Chilson
INDUSTRIAL CONSULTANT

Guaranteed Annual Wage

On a previous occasion I recommended that the drug and cosmetic industries adopt the policy of guaranteeing a minimum annual wage. They can well afford it and are missing an opportunity to get millions of dollars of free publicity by not leading the parade. The first well-known firm to announce a guaranteed annual wage will hit the front pages of every newspaper in America as Henry Ford did when he announced the five dollar minimum wage. Ford took a much longer chance than any manufacturer would be required to take today because he doubled the wages of skilled mechanics and quadrupled the wages of laborers. I say this advisedly because in point of fact the average manufacturer in the drug and cosmetic industries already guarantees an annual minimum wage by providing uninterrupted work. The history of our industries straight through the depression reveals no case where factory workers were laid off in substantial numbers, excepting of course, seasonal workers. We have in effect guaranteed the annual wage of office workers because they rarely ever are laid off even during retrenchment periods, and, in many companies there are more office workers than factory workers.

But apart from the fact that our industries do provide constant work the labor cost element in our total ex-factory cost is in the majority of cases so damn small percentage-wise that many firms not only could afford to guarantee an annual minimum wage but they could double factory wages as well without affecting their profits to an appreciable degree.

I repeat that from a publicity point of view our manufacturers are asleep at the switch. Look what happened when Clairbourne Robbins knocked off his factory and took the entire group to Florida for a long week-end. The episode landed at the top center of the front page of the New York Times. Consider what the stunt cost him: a few thousand, deductible bucks. Consider what the stunt did in increasing employee morale: immeasurable. And likewise immeasurable is the advertising value of the stunt among Robbins customers: the druggists, the doctors, the patients.

Who announces a guaranteed annual wage will get similar but far more extensive publicity. But apart from all that the value of such a wage policy in maintaining employee morale cannot be calculated. It means security to the worker.

Education and Communication

Much is being said and written about faulty communication of ideas between one person and another and between one group and another. I have come to the conclusion that the reason for this sad state of affairs lies in the fact that we do not emphasize in all schools the correct use of the English language in writing and in speaking. Drill in this subject should be constant and relentless. Instead of being taught by specialized teachers the subject should be taught by all teachers—except foreigners of course.

It is a great pity that technical men cannot write and many of them cannot speak accurately and clearly. I once read a report written by a PhD for submission to his boss, who was as usual a non-technical man. I couldn't wade through the damned thing and when my chemist friend asked what I thought of it, I told him I was so confused I was just like the little boy who had just lost his chewing gum in the hen house.

I have been guilty of preaching the superiority of the sciences over the arts because I felt that the arts, being easy to learn, the student could pick up enough by reading and observation after his scientific training had been completed. This view is completely cock-eyed. I now sincerely believe that if every scientist and technical man had to take an arts degree with a major in English before beginning his scientific training we'd have a lot better scientists and they would be a lot more capable of communicating their ideas to us.

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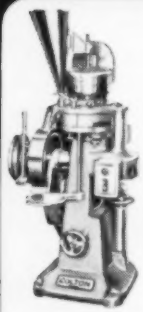
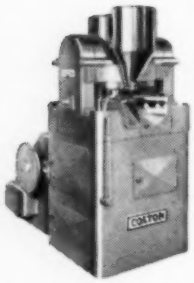
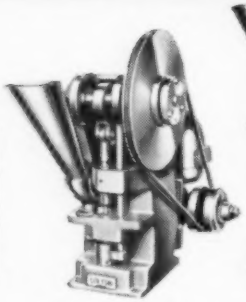


TABLET PRESSES. Single Rotary—Nos. 216; 240; 250; 270. Up to 1150 tablets per min. Up to 2" tablet dia.

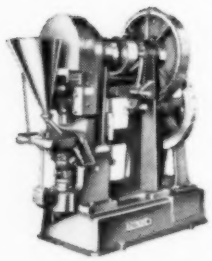


TABLET PRESSES. Double Rotary—Nos. 227; 233; 241; 260. Up to 2900 tablets per min. Up to 1¾" tablet dia.



TABLET PRESS. Single Punch. Bench Type — No. 301. Up to 65 tablets per min. Up to ½" tablet dia.

TABLET PRESSES. Single Punch—Nos. 320; 330; 340. Up to 120 tablets per min. Up to 1¼" tablet dia.



TABLET PRESSES. Single Punch, Heavy Duty—Nos. 345; 350; 360. Up to 85 tablets per min. Up to 3" tablet dia.

TABLET and CAPSULE COUNTERS—No. 715 Single; No. 705, 5-Bottle; No. 710, 10-Bottle.

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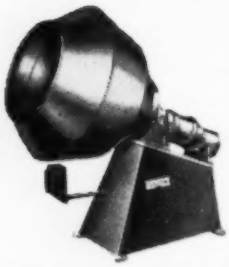
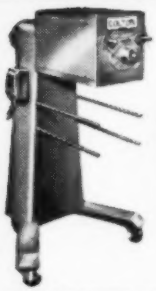
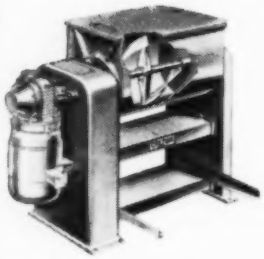


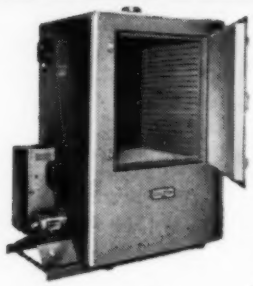
COATERS: POLISHERS: BLENDERS:—No. 36. Laboratory Size; No. 26. Bench Size; No. 16. Standard Size; No. 56. Tilting Type; No. 46. Large Blender.



GRANULATORS. Dry—No. 540 Single; No. 544 Twin. Also, Wet Granulators No. 551, 4-Blade; 561, 6-Blade.



MIXERS. Dry—No. 617, 17 Gal.; No. 636, 36 Gal.; No. 685, 85 Gal.; No. 695, 175 Gal. Also, Paste Mixers.



DRYING OVENS—No. 1018, 10-Tray Lab.; No. 2030, 20-Tray Cabinet; No. 4030, 40-Tray Truck.

STAINLESS STEEL STOCK POTS & TANKS—All types, open and closed. All sizes up to 5,000 Gal.

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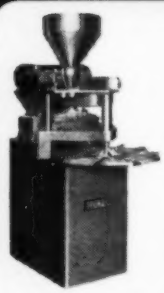
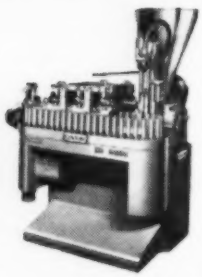


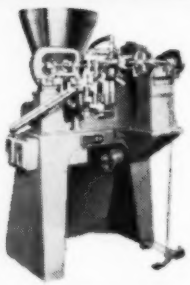
MULTIPLE SPOUT LIQUID FILLERS—32 to 480 fills per min. Up to 4 Fl. Oz. 4, 6, 8, 12 nozzles.

CREAM AND PASTE FILLER—No. 130. Hand Operated. Up to 30 tubes or jars per min. Up to 1" x 5½" tube size, with single stroke.



TUBE FILLERS, AND CLOSERS, AUTOMATIC—Nos. 175; 180; 190. Up to 100 tubes per min., liquid to heavy paste.

TUBE AND JAR FILLERS, GEAR OR WORM, POWER DRIVEN — Nos. 110; 140; 150. Up to 50 fills per min. Up to 2"x11" tube size.



TUBE FILLER, CLOSER, & CRIMPER, LIQUID & PASTE—No. 113. Up to 40—6-Fl. Oz. fills per min.

TUBE CLOSER, HAND OPERATED—Nos. 440; 450. Up to 20 tubes per min., 2½"x10" max. size.

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I have met lately some engineers and chemists who were fortunate enough to have had arts degrees before taking their scientific work. They are eminently successful in their fields and it is pleasurable to observe the ease and clarity with which they express themselves. Likewise it is impressive to observe the comprehensive view they take of the affairs with which they are concerned.

A thorough command of the language is so important that many of the big chemical and engineering firms are scouting the arts schools for bright lads because experience has shown that a young man with a good general background makes a better executive than a narrowly trained scientist or engineer.

The continued virility of the free enterprise system depends upon better communication of ideas from people who lead to those who are led. We all have this responsibility as a collateral and essential part of our business activities.

Community Interests

Some firms are doing an excellent job of participating in community affairs. I know that too many of them, unfortunately, try to run the communities in which they are located through participation in local politics. This is a short-sighted practice and invariably it indicates a selfish desire to keep from doing what common decency indicates that they should do, such as, dust and fume control. We should realize that the time has passed when we can with impunity pollute the streams with destructive effluents or befoul the air with fumes, dust and soot. The control of plant wastes is one of the best means of participating in community affairs and of improving public relations generally. Every factory should by external neatness and attractive architecture and landscaping be a landmark in the community instead of an eyesore.

In England industrial firms do a much better job of community relations than we do. They maintain extensive and attractive sports grounds not only for their own employees but also for community games as well. In the case of Aspro Ltd., a large theater with a professional-size stage is made available for community activities as well as for employee affairs.

Internally every plant should be orderly, immaculately clean and colorful. This is the basic condition of operating efficiency. To the extent that this principle is violated, so is operating efficiency impaired. When a plant is internally attractive community tours can be arranged. I have just visited the Upjohn plant where everything has been done to make the plant internally and externally attractive, and it is impressive to observe the interest casual visitors take in going through this beautiful new plant.

Business Discovers People

The following quotation from a speech made by the president of International Harvester is remarkable in that it should have been made only recently instead of fifty or seventy-five years ago. It sometimes take a long time to see the obvious. Had we had men of McCaffrey's stamp leading business three quarters of a century ago we should not be plagued with the plethora of union troubles and the social discontent that we are badgered with now. . . .

President John L. McCaffrey of the International Harvester Company minces no words. "The biggest problem in industry," he advised future presidents, "is that it is full of human beings. You will learn to your sorrow that while a drill press never sulks and a drop hammer never gets jealous of other drop hammers, the same cannot be said for people. You will learn that a turret lathe may run one part for ten years without affecting its ability or its willingness to be switched at any time to another part. But men are not that way. You will learn that you have with people the same general problems of preventive maintenance, premature obsolescence, or complete operational failure that you have with machines. You will discover that problems change rapidly, techniques change rapidly, products are transformed in a period of months; but, unfortunately, people change slowly if at all. And you cannot rearrange or retool the human organization of your business with the same ease and frequency as you rearrange or retool the plant."

London . . .

is fog,
is smog;
is smug,
is snug;
is old and gray
and full of play.
is snow and sleet
and dancing feet;
is a withered hag
with a money bag.

Dust Control

No plant can be kept clean unless it is kept free from dust. It is neither efficient nor economical to box off dusty areas. Dust should be controlled at the source. This requires training of personnel, proper handling equipment, properly designed dust hoods, ducts, and dust collectors. All these will not work of course unless a sufficient volume of air is moved to carry the dust. Ordinary dust can be trapped at a velocity of 1500 feet per minute; heavy dust that precipitates easily will require from 2000 to 3000 feet per minute. This relates to the velocity of the air and not the volume being exhausted. You can exhaust a colossal volume of air from a given area and not have any perceptible air movement at all. On the other hand a relatively small amount of air can be moved at a terrific velocity.

Attempts have been made to pressurize walls so that dust can be suspended and carried to oppositely placed exhaust ducts. I witnessed a demonstration of such a

Pacquins . . .

famous for

smoothing skin . . .

use PNEUMATIC . . . famous for smoother labeling

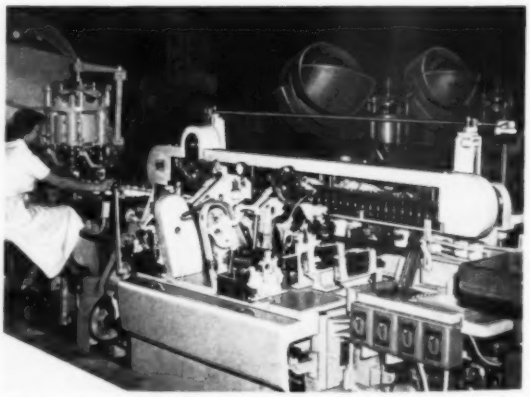
"Smooth as silk" could describe the way milady's skin feels, after using PACQUINS . . . or the way Pneumatic filling and labeling machines do their job in PACQUINS model plant.

A glance at the PACQUIN containers will tell you . . . this is no easy labeling job. It calls for precision of the highest order — the kind of precision that Pneumatic equipment can *always* be depended on to give, day in and day out, at top speeds.

Built according to the highest engineering and manufacturing standards in the field, Pneumatic machines operate with money saving efficiency, handling a great variety of world famous products. If you, too, are looking for "lower cost per container" . . . better look Pneumatic's way.

Pneumatic Scale Corp., Ltd., 70 Newport Ave., Quincy 71, Massachusetts. *Also: New York; Chicago; Dallas; San Francisco; Los Angeles; Seattle; Leeds, England*

Canadian Division: Delamere & Williams Company, Ltd., Toronto



Installation of Pneumatic DIREC-TRANSFER Labelers and Rotary Cappers in Pacquins plant at Glen Rock, New Jersey.

PNEUMATIC

PACKAGING AND BOTTLING MACHINERY

system recently and in my view it was a complete flop. The "floats" that is to say the very fine mesh material was caught, but the heavy dust precipitated out on the floor and was tracked all over the plant. The method of cleaning the floor was to blow the precipitated dust with an air hose up in a hell of a cloud so that it could be sucked up by the exhaust ducts. An immense volume of air is required by such a system and in spite of that the system is not efficient because the air velocity is too low.

Now in order to catch dust it is necessary to localize it so that the exhaust system can work on it without influence from local draughts. If for example a piece of equipment is located near a window or a door, a suspended hood without side air curtains to enclose the equipment is worthless. But even if the equipment is enclosed on three sides by a hood, the dust exhaust system will not work properly if the open side of the hood faces an open window. I have designed dust hoods for enclosing equipment employed on poisonous chemicals and drugs and no workman was ever affected by the dust involved in the operation. The proper way to design a dust hood for a mixer for example is to use an inside shell in the hood, forming a complete inner lining. This lining should have a slot not over an inch wide just about four inches above the edge of the mixer. Across the front of the hood at the top there should be another slot in the lining. Thus all access to the dust—exhaust duct is from the annular space between the lining of the hood and the external shell. The purpose of the lower slot is to siphon off the dust-laden displaced air from the mixer before it has a chance to expand and billow out. The upper slot forms a rapidly moving air curtain across the open face of the dust hood. Most hoods do not catch the dust because they have no side curtains and the intake openings into the hoods are located too far above the points where the dust is created. Hence the hood has to suck the dust-laden air up too far and an opportunity is provided for stray air currents to blow the dust out of range of the hood.

New Jersey's Circus

In its plant on Willow Avenue, Hoboken, N.J., the New Jersey Machine Company runs a continuous packaging show called a circus. The show features all New Jersey equipment including the famous Pony labeler, the new rotary Pony which is a pip, being an automatic rotary labeler designed for short runs and quick changeovers. The Tuck-A-Matic cartoning opening and closing machines are featured as well as automatic box making machinery and the new German Jowe labeler. It is an interesting show. When you come to New York ring up Dick Wellbrach and arrange to see the circus.

The following information is supplied by manufacturers of the equipment described and claims made below by these manufacturers are passed along for what they are worth. Presentation of such notice in this department is not to be taken as endorsement of the claims or of the equipment.

New Model Coding Machines

American Marking Corporation of Newark, New Jersey, has introduced three new model coding machines—American "Micro-Coder" Nos. 20, 22 and 23. These marking machines are friction driven by contact with articles, large or small, usually on a conveyor system.

American "Micro-Coder" has three rollers—felt ink roller, rubber transfer roller for smooth, even ink distribution, and type roller. Two micrometer scale dials (patent pending), one to adjust the transfer roller to the type roller and the other to adjust the transfer roller to the ink roller, making it easy to speedily install and adjust the marking machine so that all three rollers rotate together for correct contact with the article being printed—and the best printing results.

The American "Micro-Coder" has a series of "SURE-GRIP" base lock (patent pending) plastic clamping rings—each ring having knurled edges—that holds base lock rubber type or logotypes securely in position. This system of locking in type guarantees against the possibility of type "riding up" no matter how long the machine is in operation.

The American "Micro-Coder" has totally enclosed double springs (patent pending) that firmly hold the printing unit in contact with the object being marked. It has a cushioned shock absorber action on return from tension. This double spring arrangement enables it to mark articles from the top, bottom, right or left side as desired, without going to the trouble of changing springs as in the conventional machine.

The American "Micro-Coder" is supplied with a 360-degree re-set for standard operations. Other arrangements may be had if required.

New Heat Sealer for Thermoplastic Films

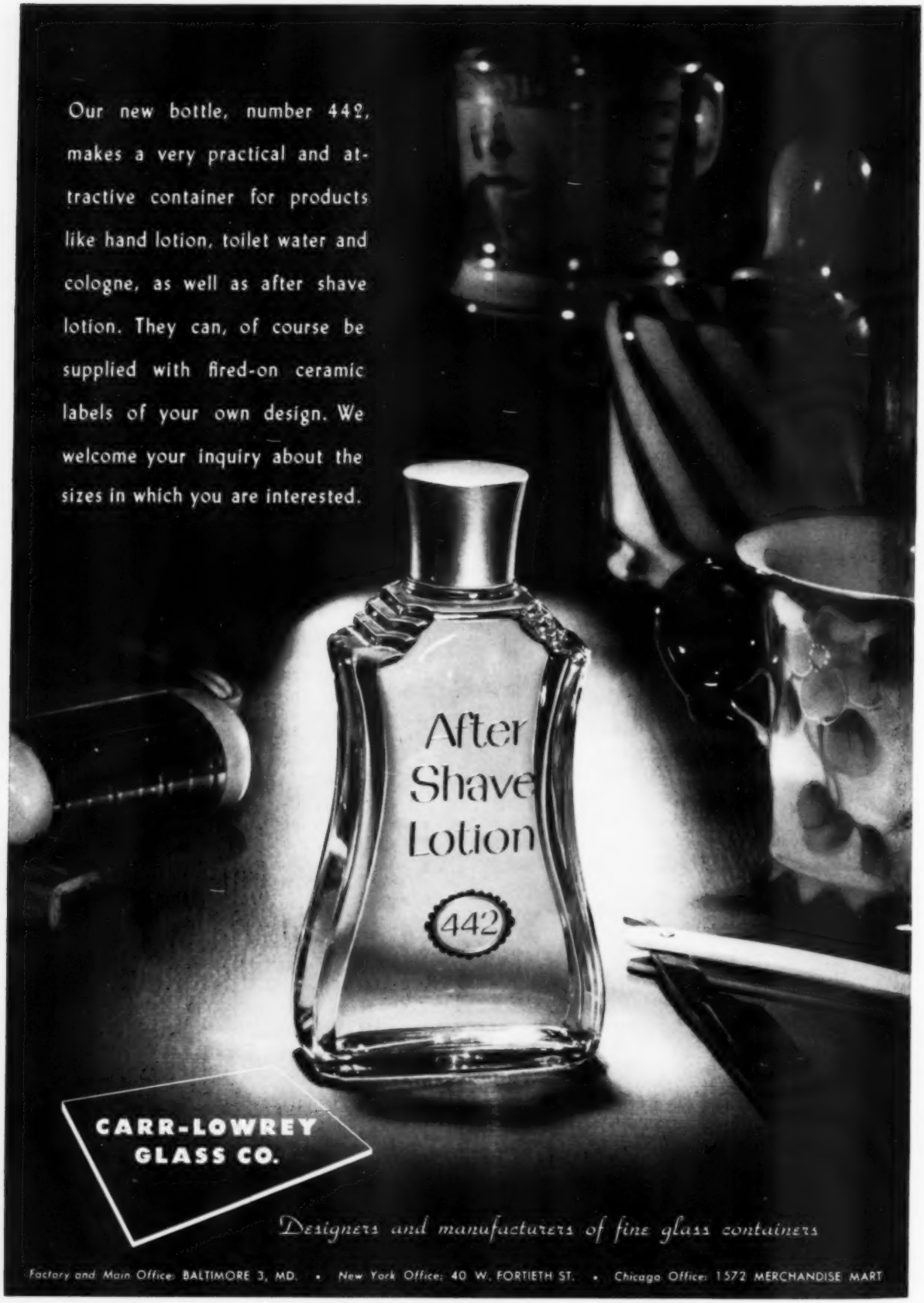
Everything from garden seed to large industrial parts is wrapped in film for protection and economy of packaging.

Hand sealing is necessary where large production sealing equipment is uneconomical. To meet this need, this company has introduced a hand sealer which employs an entirely new method of heat sealing directly on Polyethylene, Pliofilm and other thero-plastics films.

It has been thoroughly field tested and found ideal for sealing all types of bags. It is extremely rapid for sealing on flat, straight and irregular shapes.

Applications include sealing bag ends and packages, lap sealing and cutting. Its low cost only $23.90 makes it practicable for use by manufacturers on production lines, in industrial laboratories, by jobbers, food stores, locker plants and plastic converters.

Weight is less than 1 lb. A large and comfortable grip makes it easy to handle. Safety rest keeps roller off table or bench when not in use.


Our new bottle, number 442, makes a very practical and attractive container for products like hand lotion, toilet water and cologne, as well as after shave lotion. They can, of course be supplied with fired-on ceramic labels of your own design. We welcome your inquiry about the sizes in which you are interested.
After Shave Lotion
442
CARR-LOWREY GLASS CO.
Designers and manufacturers of fine glass containers
Factory and Main Office: BALTIMORE 3, MD. • New York Office: 40 W. FORTIETH ST. • Chicago Office: 1572 MERCHANDISE MART

Temperature is adjustable, convenient and accurate from 200° to 450° F. Heating element uses only 50 watts. Operates on either AC or DC.

Made in three models. No. 50 for Polyethylene and Pliofilm; No. 51 for cellophane; No. 52 for cutting and sealing.

Full details may be had by writing to the manufacturer, Sealine Manufacturing Corp., 4716 W. Lake Street, Chicago 44, Illinois.

Straight-Line Filling Machine

A new, straight-line, heavily constructed machine for filling semi-liquid and semi-solid products into as many as 300 glass, plastic and metal containers a minute has been developed by the Filler Machine Company, Inc., Philmont Club Station, Pa. New air-operated valves cut off instantaneously regardless of the cycle speed and greater accuracy of fill is provided since valves themselves are completely air free. Standard equipment is a no-container, no-fill device preventing operation of the machine and loss of product when containers are not at the filling station. The machine, called the Model SL-55, can be constructed to handle from ½ oz. to 32 oz. containers and fills jellies, preserves, mayonnaise, salad dressing, cheese, cosmetics, pharmaceuticals, petroleum and chemical products. The new design is of simplified construction, saving room space, increasing efficiency and lowering maintenance considerably. All contact parts and parts around the filling zone are of sanitary stainless steel construction and the unit is easy to clean, adjust and change over to different containers and products. It is ruggedly constructed for longer life and has slower moving parts to prevent vibration. The Model SL-55 is available in 4, 6, 8, 10, and 12 line fillers and can be equipped with an air cleaner, unscrambler and motor driven agitator. Special jacketed and heated hoppers can also be obtained.

For complete details, write the Filler Machine Co., Inc., Philmont Club Station, Pa.

Roto Kimco for Printing Labels

Speed up production and save time, money and labor with the new Kimball Roto Kimco. The Roto Kimco will speedily and economically imprint all types of box-end labels, prepack labels, price tags, pants tickets, informative tags, saddle labels, product identification tags and many many others at the rate of 150 per minute. The Roto Kimco System eliminates once and for all the carrying of large inventory preprinted labels. Labels and tags are imprinted when and as you need them.

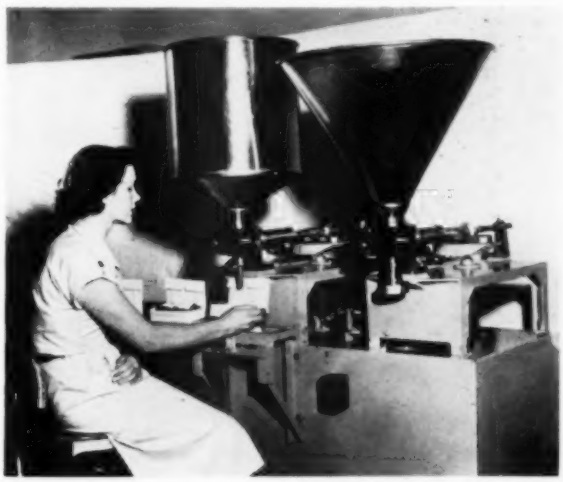
The Roto Kimco prints from easy-to-use metal logos or sticky back rubber mats—from 6 point to giant 36 point display type. The versatility of the Roto Kimco affords you to print a large variety of sizes of labels from a minimum size of 1″ x 5/8″ to 6-5/16″ x 4-3/8″ maximum. Roto Kimco is sturdily built—very fine precision construction. The Roto Kimco is fully automatic and very easy to operate—no skilled operator needed. Variety of type sizes can be used. Type slides into grooves quickly and easily. Type changes are made in a matter of seconds.

Roto Kimco comes equipped with a cut-off knife that cuts each individual label and drops them into a hopper for convenience of handling. Roto Kimco will imprint on all types of label stocks—gummed, ungummed, heat-seal or pressure-sensitive, whether they are Litho-coated or Krome Kote. It will also take all types of tag stocks from the lightest to the heaviest. Tags and labels come in fanfold form for convenience of storage and ease in handling. Reset counter attached to machine counts each individual tag and label for recording purposes.

A demonstration of this new high-speed Roto Kimco Machine can be had at your convenience. Write or 'phone A. Kimbell Company, 307 West Broadway, New York 13, N. Y., CAnal 6-2300—or A. Kimball Ltd., 85 Advance Road, Toronto, Canada. Offices in principal cities throughout the United States.

Filler

A machine so versatile that it fills several varieties of Mexican foods from tamales to refried beans has been developed by the F. L. Burt Company for Elena's Food Specialties, San Francisco. Though small and compact, the machine fills from 15 to 30 bottles, jars or cans per minute and is adjustable from one to 32 ounces.



Particularly practical for this type of variety filling, the machine is quickly and easily cleaned and handles both liquids and semi-solids. Manufactured by F. L. Burt Company, 571 7th Street, San Francisco, California.

Equipment for Solids Recovery

Process Products Division, Dustex Corporation, 1754 Walden Ave., Buffalo 25, N. Y., announces a new type of equipment for solids recovery in the powdered food, pharmceutical and chemical industries where spray drying is part of a process.

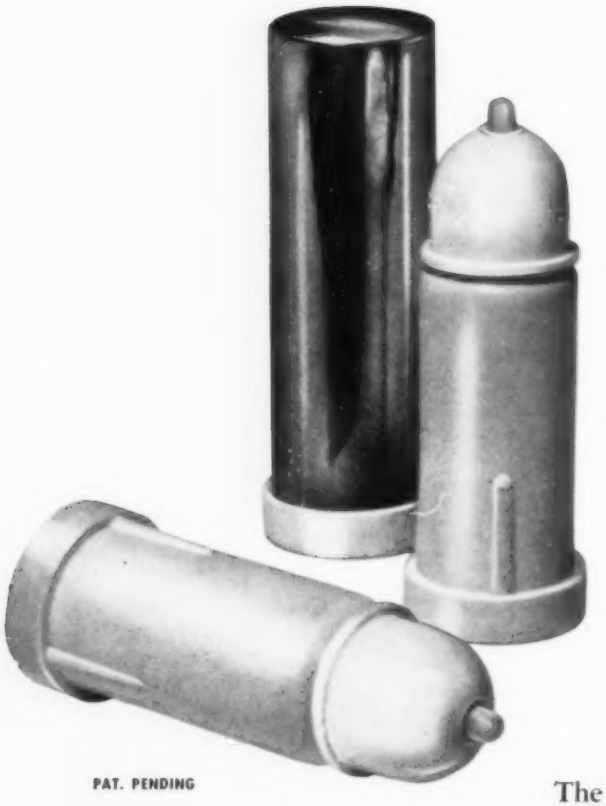
RICHFORD SPILLPROOF* PERFUME FLACONS

The magic, purse-sized perfume flacon still making sales history is proud of its volume producing running mate, the—

RICHFORD TOUCH-N-FLO*

PURSE DISPENSER

*TRADE MARK



PAT. PENDING

The one perfect purse container for Lotions, Cream Sachets, Liquid Soaps, and Deodorants, etc.

TOUCH-N-FLO will not leak, yet the contents flow easily with a gentle touch to the skin. Unbreakable plastic bottle and sure-acting dispenser handsomely covered with a snug gold metal cap. Contents 10 cc.

Available with polished brass slip-on cap for glass or plastic containers.

Write for Samples and Prices

THE RICHFORD CORPORATION

404 FOURTH AVENUE, NEW YORK 10, N. Y.

This new unit utilizes the principle of creating a miniature cyclone to achieve dry, mechanical collection efficiencies in excess of what heretofore has been available. The 18-tube unit pictured is being used to collect powdered whole milk with efficiencies of 99.6 per cent by weight. The photo shows a typical installation with hopper attached. The number of tubes and their arrangement is varied to suit the requirements of the job and the space limitations within the user's plant, according to a Dustex spokesman. One recent installation was a unit consisting of 324 tubes. A wide range of products have been tested on these units including spray-dried products high in fat and sugar content such as powdered milk, cream and baby foods without build-up or plugging. High efficiencies were recorded on all these tests.

Most units for the food and pharmaceutical industries have been constructed of polished stainless steel to meet sanitary requirements. Other models made of cast aluminum are also available. A bulletin showing installations and applications for this equipment is available from the manufacturer on request. Specify Bulletin No. B-101.

Towmotor Lift Trucks

Operating in the most severe corrosive service found today in industry, Towmotor Fork Lift Trucks, manufactured by Towmotor Corporation, Cleveland, Ohio, handle 90 per cent of all materials handling operations at American Salt Company's Lyon, Kansas plant.

Other salt processors in Kansas using Towmotor equipment are Barton Salt Company, Carey Salt Company, and Morton Salt Company, all of Hutchinson, Kansas.

Two Towmotor Model 390 Fork Lift Trucks work at the American Salt Company plant, which is in the midst of an expansion and modernization program designed to increase the plant's production volume. Since Towmotor lift trucks have been on the job, such products as block salt, bags and cartons of bulk salt are loaded on carriers 75 per cent faster. Towmotor high-stacking has increased storage capacity 100 per cent, and man-hours needed for storage operations have been cut 50 per cent.

American Salt Company, a division of The Cudahy Packing Company, has doubled production volume to date, due to a new 750-ton block press and the efficiency of mechanical handling with Towmotor Fork Lift Trucks. Despite the severity of operating in such corrosive service, company officials report no reduction in efficiency of the fork lift truck equipment, or added maintenance expense.

Lubricated Plug Valves

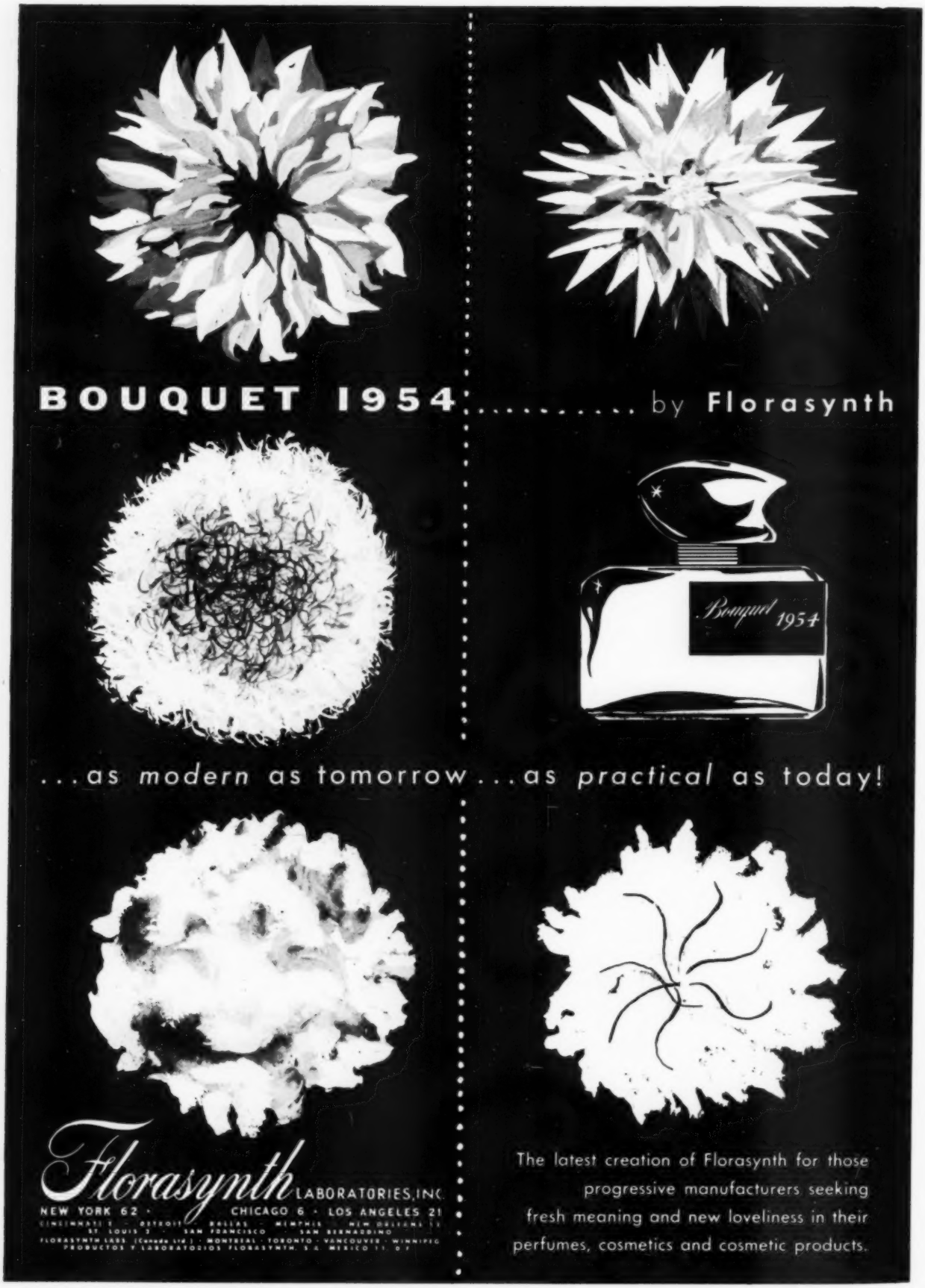
Application of lubricated plug valves on a high vacuum system solved a difficult valving problem for Hoffmann-La Roche, Inc., Nutley, N. J., one of the world's leading producers of bulk synthetic vitamins and pharmaceutical specialties.

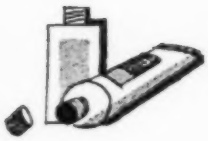
Hoffmann - La Roche manufactures thiamine (Vitamin B-1) by a patented process involving the handling of a sensitive chlorinated compound. A batch operation, the equipment used includes five fractionating stills, each served by a 4-stage steam ejector. The operating pressure is in the 100-300 micron range and the temperature is approximately 175F-250F.

Each of the five steam ejectors and each of the stills is equipped with a 3-inch Rockwell-Nordstrom lubricated plug valve and a 1-inch valve of the same type used as a manual relief valve. At the two product

draw-off points, there are two block valves and two valves in the relief systems of the same type and size.

Hoffmann-La Roche reports that the plug valves have given excellent service despite the rigorous operating conditions. The high vacuum is held with no leakage; the valves are easy to operate and give quick positive shut-off. Despite the corrosive nature of the fluids handled, the valves have stood up very well, some for as long as 2½ years of continuous service. The inherent design of lubricated plug valves is such that critical portions of the valve are not exposed to the line material.


BOUQUET 1954 ..... by Florasynth
Bouquet 1954
...as modern as tomorrow ...as practical as today!
Florasynth LABORATORIES, INC.
NEW YORK 62 · CHICAGO 6 · LOS ANGELES 21
The latest creation of Florasynth for those progressive manufacturers seeking fresh meaning and new loveliness in their perfumes, cosmetics and cosmetic products.



Advancing Therapy

Tuberculosis Drug

One of the new series of synthetic chemical compounds tested for activity against tuberculosis has been found to be effective in animals against strains of tubercle bacilli resistant to the drugs most widely used in tuberculosis treatment. The compounds, S-ethyl-L-cysteine, is reported in the November *American Review of Tuberculosis*, journal of the American Trudeau Society, in a paper by Morris Solotorovsky, Seymour Winsten and Eliott Ironson of the Merck Institute for Therapeutic Research, Rahway, N. J., and Horace D. Brown and Harold J. Becker of the Research Laboratories, Chemical Division, Merck and Co.

A white, crystalline, water-soluble substance with a thioethyl component, the new compound does not, however, have the offensive odor characteristic of thioethyl compounds and is well tolerated by experimental animals, according to the investigators who report that it is more active than pyrazinamide or paraaminosalicylic acid, but less active than isoniazid or streptomycin when given to the animals in their diet.

When injected under the skin, S-ethyl-L-cysteine did not confer a high degree of protection, nor did it show activity against the tubercle bacillus in the test tube. Because of its lack of activity *in vitro*, studies could not be made to determine whether or not tubercle bacilli became readily resistant to the compound.

Salicylamide

In recent years it has been suggested that the salicylates have in addition to their analgetic action an effect on the output of adrenocortical hormones. Evidence linking salicylates with adrenocortical activity has been presented by numerous investigators. Keleman and Majoros, Van Cauwenberge and his associates and Hetzel and Hine report adrenocortical stimulus by large doses of salicylates as shown by eosinopenic response, decrease in adrenal cholesterol and ascorbic acid, and increased urinary excretion of steroids. Bach, *et al.*, reported similarity in action of salicylate and ACTH. The work of Calesnick and Beutner and Schuman and Finestone suggest that the hyaluronidase inhibiting action of salicylate may be due to its adrenocortical stimulating effect. Meade and Smith disagreed with the conclusion of Hetzel and Hine, Van Cauwenberge, and others, and reported failure to obtain eosinopenia in humans after salicylates and differences in action of salicylate and ACTH on glycosuria in rats. It seems however, that the preponderance of evidence supports the belief that salicylates have a stimulating effect on the adrenal cortex exerted through the pituitary. That salicylamide shares the pituitary-adrenocortical stimulating action of salicylates is suggested by the report of Cronheim that salicylamide reduced the ascorbic acid content of the rat adrenal glands. Since salicylamide is apparently less toxic than salicylate and produces fewer side effects it might possibly prove to be a valuable substitute for the salicylates in those diseases such as rheumatic fever which require very large doses. Its effects on the pituitary-adrenal system are therefore significant.

Salicylamide was found by Crampton and Voss (*J. Am. Pharm. Assoc.* 43:700, 1954) to produce a significant decrease in eosinophils in four hours and a more marked decrease in six hours. Salicylamide also produced a significant decrease in ascorbic acid content of the adrenal glands. These effects are considered indicative of increased activity of the adrenal cortex.

Chlorpromazine in Psychiatry

At a meeting of the Neuropsychiatric Society in Peru, Drs. Sal y Rosas, R. Jeri, and F. Sanchez reported the results of their investigations on 63 persons affected with diverse mental and neurological diseases treated with chlorpromazine. All patients were carefully watched day and night. In all patients psychological improvement was observed. Those with manic depressive psychosis showed a marked improvement, and only one required electroshock Results were satisfactory in the patients with schizophrenia, especially the in chronic cases considered incurable, as longas the personality had not been damaged. In the patients with symptomatic psychoses moderate improvement was observed. In the epileptic patients the results have been promising, but the authors consider that the number of these patients was too small to give conclusive results. Of the patients with neuroses, the best results were obtained in those with the anxiety type. All neurotic patients also received psychotherapy, and much of their improvement was attributed to this. The patients in states of depression responded less favorably than those with anxiety. In all the patients tachycardia, increase of appetite, and lowering of the blood pressure were noted, but untoward side-effects were seen in few patients. These side-effects included nasal obstruction, epistaxis, and diminution of visual acuity. If the drug is given parenterally it is less apt to cause constipation.

Drs. A. Seguin and Renato Castro de la Mata of Lima reported their experience with chlorpromazine alone. Their results were fairly good, especially in patients with excitement from any cause. In some patients with schizophrenia the response was surprisingly good. None of the Peruvian investigators has attempted to produce a state of artificial hibernation in any of their patients with this drug. They have only produced a state of apathy in which the patients will respond to stimuli but give the impression that they would like to be alone.

Naphthyldichloroethylamine in Hodgkin's Disease

Twenty-five patients with malignant lymphogranulomatosis and seven patients with other malignant diseases were treated orally with Haddow's cytotoxic substance R_{18} (β-naphthyl-dichlorethylamine, by Videback and Kaae (*Ugeskr. laeger.* 116:943, 1954). The daily dose varied between 200 and 800 mg. The therapy can be maintained for a long time. As a rule the clinical effect appeared in the course of from one to three weeks and in some cases was strik-

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Aldehyde C 6 upto Aldehyde C 12
including C 11 undecylenic aldehyde
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mg. Especially in Hodgkin's disease, the treatment is more effective than is treatment with nitrogen mustard, and it is particularly to be considered as a supplement to or a substitute for roentgen treatment when the latter is not applicable because of the spread of the disease (so-called radioresistant cases). Treatment is oral and inexpensive. Ambulant treatment can be carried out. There are no immediate side-effects. Larger doses can provoke nausea and long-continued treatment can induce leukopenia, thrombocytopenia, and anemia. These complications practically always develop slowly and disappear when the substance is withdrawn or are controlled by chemotherapy and blood transfusions.

Analgesic Potentiation

By addition of *N*-methyl-ω-phenyl-*tert*-butylamine or its salts (J. Seifter, *U. S. Pat. 2,687,366, Aug. 24, 1954*), the analgesic action of nonnarcotic analgesics, e.g. acetyl-salicylic acid, acetanilide, phenacetin, salicylamide, the salicylates, or phenylcinchoninic acid, is increased without increasing the blood pressure, heart rate, or blood sugar, and without disturbing the vision or producing anxiety, restlessness, insomnia, or other symptoms of cerebral stimulation.

Iron-Dextran Hematinic

An iron-dextran solution for intramuscular injection has been studied by I. McLean Baird and D. A. Podmore (*Lancet*, 1954, 2, 942) with regard to tolerance, absorption, hematological response, and reactions. The characteristics of the solution are enumerated as follows: it is about one-third as toxic to mice as iron saccharate solution; it is more stable, *in vitro* and *in vivo*, than iron saccharate; it does not precipitate plasma over a wide *p*H range; it has a *p*H of six to seven, is isotonic with tissue fluids and contains the equivalent of five per cent of iron. For 40 patients treated for iron-deficiency anemia, no reactions were observed, and the only disadvantage of the preparation was occasional staining of the skin.

A report from D. F. Capell *et al.* (*rit.B Med. J.*, 1954, 2, 1255) states that, in a series of 15 patients treated for iron-deficiency anemia by intramuscular injection of iron-dextran solution the product was readily adsorbed and was found to have advantages over intravenous iron preparations because of easier administration and lower toxicity. The results of treatment of 50 cases of anemia of pregnancy are recorded by J. M. Scott and A. D. Telford Govan (*ibid.*, 1257), who also remarked on the facility of administration of iron-dextran solution and absence of reactions. In their experience, the response was equal to that obtained with saccharated iron oxide given intravenously.

Xanthocillin Antibiotic

Xanthocillin, according to W. Rothe (*Deuts. med. woch.* 79:1080, 1954) contains the antibiotic in pure crystalline form with the two components X and Y in a ratio of about four to one. The antibacterial spectrum of the new antibiotic is unusually wide. It prevents in high dilutions the growth of micrococci, streptococci, and Corynebacterium diphtheriae and other gram-positive bacteria, and in addition also that of gram-negative bacteria resistant to penicillin, such as colibacilli, Proteus organisms, Pseudomonas aeruginosa, and anaerobic spore-forming agents, such as Clostridium tetani, Bacillus anthracis, Clostridium perfringens, and Mycobacterium tuberculosis. Xanthocillin also acts as a bactericidal in high dilutions, so that one may speak of a polyvalent-bactericidal effect. Experiments with various bacteria shows that in contrast to other antibiotics and sulfonamide compounds xanthocillin does not produce increasing resistance of the bacteria. Strains that become experimentally resistant to penicillin, sulfonamide compounds, or streptomycin, maintained their original high sensitivity to xanthocillin. The new antibiotic, however, is not suited for general treatment because it is not easily absorbed, and that makes it impossible to achieve an adequate blood or tissue level by parenteral or oral administration. Xanthocillin was applied as a powder, an ointment, a wound-packing material, or a solution. It was successfully applied to the outer layer of the skin, to wounds, to the eyes to the nose, mouth, and pharynx, in the nasal accessory cavities, pleural cavity, peritoneum, and uterus.

Piperazinecarboxylic Acid Sedatives

In studying the pharmacological properties of various derivatives of piperazine it has been noted that some possess sedative properties when tested in animals; Nonas has reported that N,N - diethyl - 1 - piperazinecarboxamide has possible clinical usefulness as a daytime sedative. Since various amides and urethans exhibit sedative and hypnotic properties, Goldman and Williams (*J.A.C.S.* 76:6078, 1954) decided to synthesize derivatives of piperazine in which N_4 is substituted with an acyl or aroyl group and N_1 is substituted with a carbalkoxy or carbaralkoxy group.

Among the 4-acyl and aroyl derivatives of ethyl-1-piperazinecarboxylate, a number were found to be active as sedatives when tested with the asymptomatic dose in rats in activity cages. In the normal acyl series there is a narrow range of activity with the peak (4+) reached at C_4—C_5 in ethyl 4-*n*-butyryl-1-piperazinecarboxylate and in ethyl 4-*n*-valeryl-1-piperazinecarboxylate. In the branched-chain acyl series there is a wider range of activity with the peak (4+) at isovaleryl, and 3+ activity for the 2-methylbutyryl, 3-methylvaleryl and 2-ethylcaproyl derivatives. The isocaproyl derivative is much more toxic than the previously mentioned compounds and at the asymptomatic dose level the compound is inactive. The aroyl derivatives are inactive.

A comparison of the methyl, ethyl, *n*-butyl and benzyl esters of 4-*n*-butyryl-1-piperazinecarboxylic acid reveals that the peak sedative activity is reached in the ethyl ester.

Reserpine Derivatives

Chemical modifications of reserpine by C. F. Huebner (*J.A.C.S.* 76:5792, 1954) resulted in compounds obtained from alkylation of the indole nitrogen and by conversion of the carbomethoxy group to the corresponding amide.

Pharmacological investigation of these reserpine derivatives showed that they are devoid of the tranquillizing and hypotensive properties characteristic of the parent alkaloid. In fact, N-methylreserpine acts as a reserpine antagonist. Details of these pharmacological experiments will be published elsewhere.

Antitubercular Antibiotic

Vinactane, an antibiotic substance from *Streptomyces vinaceus*, had a significant antitubercular activity in infected mice according to Mayer et al. (*Experientia* 10:335, 1954) at doses greater than 0.5 mg. daily for 21 days and in infected guinea pigs at doses of 2 mg. or more daily. Guinea pigs inoculated intramuscularly with daily doses of 20 mg./kg. for 60 consecutive days showed no ill effects. The approx. subcutaneous, intraperitoneal, and intravenous acute $L.D._{50}$ values for mice are 35, 25, and 4 mg./kg., resp.

Perfumer's Shelf

Violet Leaf Odors

Although there is a wealth of technical information which details the process of manufacture for esters which when diluted resemble the odor of violet leaves, there is still a marked lack of elementary physical data and little upon which a perfumery student can turn to for guidance in compounding according to C. Morel (*S. P. C.* 937, 1954).

Any attempt at odor description is no more satisfactory for these violet leaf esters than for the violet ketones.

As a class, these carboxylic esters in the concentrated state, as well as upon dilution, are heady, sickly bodies all of which show something of the greasy castor oil inflection of heptanal (or its dimethyl acetal), and although the usual suggestion in the literature is for usage at the ten per cent level, a dispersion of half this strength or less, in the mixed solvents as suggested for the lactones, has proved perfectly satisfactory.

Not all the esters listed are commercial propositions, and few catalogues of aromatic materials venture beyond the familiar methyl heptine carbonate and methyl octine carbonate. Although many "verdure complexes" can be evolved by combining these carbonates with the dimethyl acetals of phenylacetaldehyde, hydratropic and heptyl aldehydes, a useful alternative series may be built upon such solvent-diluents as the methyl esters of lauric, myristic and oleic acids, and in another direction, with ethyl decylate (rose leaf), *p*-isopropyl phenylacetaldehyde and *p*-isopropyl acetophenone (cuminic-orris).

These are very useful green bases because methyl heptine carbonate is not particularly stable towards soap and also develops peculiarly musty-leathery notes in mineral oil and talc.

Other versions of special folial bases, however, have undergone many modifications in recent years because of the availability of an entirely new gamut of fresh folial odors. Reference is to the "pure" green-leaf tonalities of the hexenol and nonadienol alcohols and corresponding aldehydes, which for sheer beauty of odor may perhaps be likened to the delicacy of pastel shades against the blatant poster-colors of the alkyne carbonates, and many exquisite versions of the violet perfume can now be formulated with the more recently available isomers of methyl ionone and the help of these folial "shading" materials.

However, the less expensive alkyne carbonates, when properly extended in appropriate verdure bases and used in traces, can be satisfactorily employed to add desirable leafy touches to simulations of such secondary floral odors as acacia, cassie, iris and mignonette—and these, in their turn, add a pleasing natural background to the semiexotic blossom fragrances as typified by freesia, frangipanni, gardenia, jonquil, stephanotis and tuberose.

Vanillin

Several years ago the Food & Drug Administration determined that a 0.7 per cent solution of vanillin was identical with pure vanilla extract in strength of flavor, but not in quality of flavor. This difference in quality has been attributed to the presence of small amounts of resins in the natural extract, and it has been the custom to add modifiers such as coumarin to the imitation extracts. The use of coumarin has never met with general approval because the harsh note it introduces is seldom encountered in the vanilla beans extract, in which, of course, coumarin is not normally present. It probably came as no great blow to users of imitation extracts, therefore, when a toxicology laboratory reported that the pathological conditions produced in animals being fed with coumarin gave some cause for alarm. This announcement has led to the voluntary withdrawal of coumarin from essences and flavors by all manufacturers until the toxicity has been studied in greater detail.

Essences are prepared by dissolving vanillin in alcohol and adding glycerine or water with good mixing according to E. B. McCall (*P. & E. O. R.* 365, 1954). The resulting concentrates can then be diluted with water to the strength required. Incorporation of sugar or syrup sweetens the essences, and the addition of caramel color (0.5 gram per oz. vanillin) is recommended for coloring. Such essences are quite suitable in themselves for imparting the standard vanilla flavor to foodstuffs, but if a smoother, fuller flavor is required the addition of a small percentage of pure vanilla extract or comminuted vanilla to the synthetic material will achieve the desired result, in addition to improving the color of the essence.

In the confectionery trade vanilla flavoring is so extensively employed that details of its use are superfluous in an article of this type. In addition to its normal role of imparting vanilla flavor to chocolates, cakes, icing, fudge, etc., however, it has proved invaluable in trace amounts for the removal of the harsh taste present in certain cocoa bean extracts used in the manufacture of chocolate coatings. This ability of traces of vanillin to produce in essences compounded of several substances, a "rounding-off" or "blending" effect, without the flavor of vanillin itself being detectable is also recognized in other fields. In the mineral water industry, for example, normal use of vanilla essence gives the vanilla flavored "cream soda," whereas trace amounts of vanillin are used to improve the flavor and function as a fixative in other minerals such as lemonade and orangeade without the "cream soda" flavor becoming discernible.

Again, trace amounts of vanillin have been found useful in coffee and cocoa flavors, and the addition of vanillin to whisky or brandy in concentrations as low as four parts per million is said to improve the taste distinctly by almost completely elimination of the spirit character of the beverage, without the vanillin itself being detectable by aroma or taste. A rather contrasting case of a

TOP NOTES by Fritzsche

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A THOUGHT for the Month

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—BOURKE COCHRAN

FLOWER of the Month

February—Violet
or Primrose

March—Jonquil
or Daffodil

MAYBE YOU KNOW HIM . . .

FOR a young man in his early thirties, PARKER SCHWAMB has covered an amazing lot of territory—both in mileage and in accomplishment. At the age of two, his family moved from his birthplace in Shorewood, Wisconsin, to Southern California where, except for four years of Army service, he has since spent most of his life. In his teens, he participated in high school and semi-pro baseball, and at Southwestern University studied law. Three years of this ended with Uncle Sam taking up an option on his services. Parker fulfilled this obligation creditably as a navigator in the Army Air Transport Command. His one regret is that he did not then know that he would eventually be concerned with the sale of essential oils and aromatics, because his duties in the ATC took him to half a dozen continents and to many of the countries and regions in which flower cultivation and essential oil production abound. And he could have learned so much of future value —quickly—and at first hand! With his release from service, he entered the pharmaceutical field and for seven years was engaged in sales, principally, and in production. In 1953 he joined the Los Angeles branch of Fritzsche Brothers and his boundless enthusiasm for the company and its products is now lending added support to that office's growing sales activities. In his leisure hours, Parker likes to putter around the house and garden, play occasional golf, watch baseball and football, and enjoy the companionship of his vivacious wife, DeLories, and two attractive daughters, Susan 5 and Peggy 2½, both little blonds.

RECOMMENDATION of the Month

Fritzbro Synthetic Flower Oil NEROLI

There are many compositions in which the use of genuine Oil Neroli is most desirable, but prohibitive at current costs. Under such conditions, the perfumer's only alternative may be to select and use an economy-priced but acceptable substitute. Our FRITZBRO SYNTHETIC FLOWER OIL NEROLI is one of the most satisfactory and dependable simulations we know of—a creation of remarkable fidelity and *proven* worth. It imparts the elusive sweetness of orange blossoms at a cost of one-tenth that of the genuine bigarade petale. Its superb odor will be found useful in the backing, blending or finishing of bouquets, and in compositions based upon neroli. Why not try this really fine floral specialty at $25.00 per lb. . . . or $1.60 for a trial ounce?

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somewhat similar effect is the claim that addition of vanillin to chlorinated water results in mutual destruction of the two flavors with the formation of a normal tasteless water. Vanillin in trace or larger amounts is also employed in numerous other flavors notably apricot, bitter almond, banana, cherry, currant, gooseberry, melon, peach, pineapple, raspberry and strawberry.

In the ice cream industry it is estimated that upwards of 60 per cent of total production is vanilla flavored. In this case, the addition of a proportion of natural vanilla extract to the synthetic material is recommended, since the resins present reduce the possibility of crystallization of the vanillin in the relatively tasteless, solid form at the low process temperatures employed. Moreover, certain ingredients of the natural compound by virtue of their antioxidant properties prevent the development of a stale odor due to oxidation of the fats present.

Methyl Anthranilate

Methyl anthranilate according to A. G. Arend (*P.E.O.R.*, Sept. 1954), represents a constituent found in many natural perfumes, and utilized for a somewhat wide variety of synthetic perfumes and cosmetics. Fresh blossoms of the bitter orange are stated to give a yield of from 0.07 to 0.12 per cent of this, which, together with indole, largely contributes to the characteristic odor. Methyl anthranilate is also found in jasmine flowers where it represents the principal perfume, in narcissus, shuei flowers, wallflower, and ylang-ylang, etc. It is used to reproduce these fragrances artificially, and also in the synthetic production of acacia, mimosa, tuberose, and the American productions glycinea and peony, and to some extent in handkerchief perfumes. The commodity is competed with to some degree by different artificial oil of neroli compositions, under different trade names.

The pure material itself, however, is frequently preferred for the making up of various proprietary perfumes, colognes, toilet soaps, and other preparations.

The compound possesses an extraordinary intensity of odor, and by diluting or mixing it with other desirable smelling essential oils, the more pleasing properties of this substance are brought out. By adding methyl anthranilate to other perfumes for the purpose of producing synthetic flower perfumes, a similar effect is obtained to the popular addition of a little musk. The fragrance becomes more permanent and evaporates less quickly as a consequence. Examples of this are seen with artificial musk, mustard oil, pyridine, and quinoline bases, representing substances containing nitrogen, where this property more especially pertains. Compared to musk, the odor of methyl anthranilate adapts itself more favorably to flower perfumes. Instances have been given where an addition to this ester not only functions as an imitation, but also as an actual synthesis of the flower perfume, wherein it has been proved to occur naturally.

Among noted artificial perfumes in which the foregoing ester represents an important constituent, are narceol, auranthol, and isolene, and it is conveniently utilized in other fragrances as a blender with lemon oil, partly because of its strong odor, and also because of its relative cheapness. For example, the cheaper brands of artificial neroli contain up to 10 per cent of methyl anthranilate, while other varieties contain about six per cent. Synthetic acacia contains up to nine per cent, cassia and mimosa, the majority of which compositions are almost wholly mixtures of synthetics without any natural floral extracts, contain about five per cent of the ester, while synthetic jasmin compositions contain 2.5 per cent. (The oil, extracted from jasmin plantations, differs in that it contains some 10 per cent.) Synthetic narcissus rarely contains more than one per cent of the ester. Of the toilet soap perfumes, in lily compositions it is added to the extent of 10 per cent, jasmin eight per cent, verbena five per cent, and almond three per cent. The ease with which methyl anthranilate can alter its odor is easily demonstrated. It can be made to resemble the odor of bergamot oil by shaking up 150 grams of the melted anthranilate with 850 c.c. of limonene. Because of its strong odor, the total amount used in actual soap compositions cannot exceed about two per cent, but it is employed in quite a large variety of toilet soaps.

The penetrating odor appears to be appreciated for export soaps, but here the various artificial neroli preparations offer competition to the anthranilate.

Diacetyl

Diacetyl is a diketone $CH_2CO.COCH_3$ and is also known as dimethylglyoxal or 2:3-butanedione.

Physically it is a yellow liquid with a chlorine- or quinone-like odor which is quite characteristic; it boils at 88° C. and forms a binary mixture containing about 90-95 per cent of diketone, b.p. about 90° C., with water. It is very soluble in water (about 25 per cent w/w at room temperature) as well as in alcohol, ether, etc. When pure it melts sharply at 4° C. (uncorrected).

Diacetyl occurs naturally in butter as well as elsewhere in nature; it gives to butter its characteristic odor and, it is said, also contributes to the color of butter. In consequence, diacetyl is sometimes added to margarine in order to obtain a better synthetic match for the natural product. The diacetyl used in margarine manufacture must be very pure and the specification used includes not only the refractive index and color index but a m.p. which is often required to be no lower than 4° C. It is not at all easy to prepare diacetyl in economic yields with a m.p. as sharp as this, although materials with m.p. 3° to 3.5° C. are easier to obtain. Such materials contain impurities which affect the odor of the product and give a taint to the margarine. (M. A. Phillips, *Manuf. Chem.* 487, 1954).

Paraguay Petitgrain

Although the Paraguayan climate and soil conditions are highly suitable for the cultivation of sour orange trees of a quality which permit the production of excellent Petitgrain Oil in Paraguay, on account of the very primitive method of manufacture, the bulk of Petitgrain Oil produced is not of such high quality as that made in the South of France or other Mediterranian countries.

The essence usually exported from Paraguay varies relatively little in quality, as most shipments represent the mixing together of small quantities produced by hundreds of farmers in the interior. Generally, the contents of Essence, is determined by its ester content, which fluctuate between 46 and 55 per cent, rarely, does it come up to 59 per cent. This small ester content, however, is due only to the very primitive method of production.

Owing to its penetrating scent, Paraguayan Petitgrain Essence is, especially, used in the manufacture of scented soap and other toilet mixtures. Contributing factor for this is its relative low price. However, the oil is subjected to further processes of purification, as the result of which a most excellent essence is extracted, which then becomes the basic material for the manufacture of perfumes, Eau de Cologne, and other lotions. (*P. & E. O. R.* 359, 1954).

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Tablet Triturates

Molded tablets or tablet triturates described by L. F. Tice (*Pharm. Intern.* Dec. 1954, p. 20) are small discs of compressed powders usually weighing about 0.06 Gm. when intended for oral use and about 0.03 Gm. when for use in preparing a hypodermic injection.

Tablet triturates are usually quite fragile and not all substances can be administered in this form. Drugs which are very potent, such as alkaloids and nitroglycerin, are often prepared in tablet triturate form.

The mold used in making tablet triturates is made of hard rubber or metal. It consists of two parts—one called a die and the other the base. The die is a thin plate containing 50, 100, or 200 perforations of very uniform size and all arranged in very careful alignment. The base contains a number of pegs which exactly fit into the perforations of the die when the latter is brought down on the surface of the base. The active ingredient is mixed with an amount of the base known to be insufficient to fill the mold. This is moistened with the diluted alcohol and pressed in the perforations of the die without regard to uniform filling.

Next, an additional quantity of the diluent is moistened and the perforations filled completely with this. The tablets are now punched out with the base, crushed, mixed very thoroughly, remoistened if necessary, and the die filled again. Now, the tablets are ejected and dried. This method is probably best for extemporaneous tablet preparation.

The diluent most favored for tablet triturates is a mixture of 80 percent lactose and 20 per cent sucrose, both in powdered form. Lactose alone tends to give soft tablets. If too much sucrose is included, they tend to be too hard. If the tablet contains drugs which react with sugars, diluents such as precipitated calcium carbonate or kaolin may be used. The liquid used to moisten the trituration is termed the excipient. Generally, it is 50-70 per cent alcohol. The water present, by its solvent action on the sugars, acts to make the particles adhere; alcohol serves to hasten drying.

The amount of excipient employed requires careful judgment based on experience. It is just enough to make a pasty mass without such an excess that liquid exudes when the damp mass is pressed with a spatula. Too much excipient leads to several difficulties: The tablet will dry slowly, be excessively hard, and dissolve slowly when used. Considerable shrinkage will take place on drying and the tablets will be deformed. Finally, the active ingredient may "creep" to the tablet surface during drying.

If the tablet contains a drug very soluble in water, it may be necessary to use only alcohol as an excipient. If an ingredient of the tablet is a liquid—a tincture, for example—evaporation to a thick paste before incorporating it with the diluent is necessary. In some instances, the liquid may be replaced with an equivalent amount, in terms of dose, of a dry product.

Hypodermic tablets are special tablet triturates usually only one-half the size of others. They must be completely soluble and made under very careful conditions to avoid contamination. This requires dust-free rooms, face masks on workers, and scrupulous cleanliness. Hypodermic tablets are intended to be dissolved in water for injection and the solution administered with a hypodermic syringe. Hypodermic tablets are usually packaged in glass vials holding 20 tablets end on end to avoid breaking and minimize contamination as one is removed for use by the nurse or physician.

Tablet trituate machines capable of producing one million a day are available. The preparation of the trituration for such machines is done quite differently. The trituration is not moistened as much as by hand since it must feed smoothly through a hopper. Tablets shaped exactly like tablet triturates can also be made by the same technique as is used for compressed tablets. Here, a granulation is prepared and processed in tablet machines with special flat-faced punches. Soluble lubricants must be used here if the tablets are to be completely soluble and starch as a disintegrator must be avoided.

Pectin

One of the most important properties of pectin is its ability to form jellies. The various factors affecting the jelly strength of pectin jellies have been fully studied by a large number of workers and summarized by P. Garrick (*Chem. Prod.* Nov., Dec. 1954). The factors affecting the jelly strength of pectin jellies are the nature of the pectin and its concentration, the *p*H, the nature and quantity of soluble solids, the nature and quantity of buffer salts, the method of preparation and the method of measurement of the jelly strength.

As far as pectin is concerned, it is assumed that the size of the pectin molecule is of paramount importance in the jelly formation, but other factors, such as the degree of esterification and the presence or absence of acetyl groups play an important part. The hydrolysis of the ester group increases the jelly strength of pectin suggesting that the carboxyl group plays a part in jelly formation. Acetyl groups hinder gelation probably through blockage of the hydroxyl groups which play a part in the bonding of pectin molecules in the jelly.

The effect of acidity on jelly formation is complicated by other factors such as hydrolysis of both the ester and the ether linkages in pectin, often resulting in degradation and the tendency for a broken or granular set at the high acidities.

It has been assumed that the role of sugar in pectin jelly formation is that of a dehydrating agent causing a precipitation of pectin molecules as a continuous network which, in some way so far unspecified, hold water molecules within their framework thus forming a rigid or semi-rigid system. It is, however, more likely that in pectin jellies pectin molecules are joined by hydrogen bonds and that sugars and polyhydroxy alcohols play a part in this binding.

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other polyhydroxy alcohols, necessary for the formation of pectin jellies, requires further investigation.

The minimum quantity of sugar necessary for gelation depends on the acidity, pectin concentration and the the methoxy content.

Buffer salts have a considerable effect on the jelly strength of pectin jellies. The potassium, magnesium, calcium and aluminium citrate buffers give stronger jellies than sodium citrate buffer. Increasing the potassium citrate content from 0.3 per cent to 0.9 per cent increased the jelly strength by a small, but definite amount.

Other factors such as the amount of heating of the jellies, the rate of cooling, the amount of stirring, the point in jelly making when the acid is added and the methods of jelly testing, all have an appreciable effect on the jelly strength so that all these factors must be specified and adhered to to obtain reproducible results.

Pectin is a poor emulsifying agent for cottonseed oil and as good as tragacanth for olive oil. As an emulsifying agent for mineral oils, pectin is better than tragacanth or acacia and as good as gum karaya. These findings have an important bearing on the use of pectin in salad creams, mayonnaise, cosmetics, pharmaceutical emulsions and the oil-containing insecticidal sprays.

Pectins have a number of medicinal uses; perhaps the best known use is in the various preparations for the treatment of diarrhea and dysentery and as a blood plasma substitute. As a blood plasma substitute pectin has been superseded by dextran and polyvinyl pyrrolidone because of the danger of its retention in the body tissues. Pectin pastes have been used with success for external ulcers, a number of recipes being given.

Stearic Acid

Commercial stearic acid is not pure stearic acid. It is a mixture of fatty acids containing a ratio of approximately 55 per cent palmitic and 45 per cent stearic acids. Usually small amounts of other fatty acids, such as oleic and myristic, are also present in amounts depending on the grade and manufacturing method used (C. C. Tillotson. *Soc. Cosm. Chem.*, Dec. 9, 1954). Commercial stearic acid is normally made from tallow or grease by pressing or solvent crystallization after fat-splitting and removal of glycerine and impurities. Other ratios of fatty acids up to almost pure stearic acid can be obtained by hydrogenation and fractional distillation.

Commercial stearic acid containing the normal ratio of 55 per cent palmitic to 45 per cent stearic acid has found wide use in cosmetic formulations. Some of the physical chemical properties of commercial stearic acid and various proportions of palmitic to stearic provide a basis for understanding their behavior in cosmetic preparations. Crystal structure, melting point, size of crystals, solubility, and x-ray diffraction patterns are basic characteristics which give useful leads to performance properties and help establish the latitude in formulations to meet desired quality standards of finished products.

Acylated Amino Acids

Although known for almost twenty years, the acylated amino acids—and especially lauroyl sarcosine—are only now finding significant usage in cosmetics (H. W. Zussman and W. Lennon, *Soc. Cosm. Chem.*, Dec. 9, 1954). Best known application is in dentifrice, but suitability for shampoo, shaving cream and skin cleansing preparations in indicated. Closely resembling the fatty acids in appearance, the acyl sarcosines are stronger acids, are somewhat more soluble and more crystalline. They adsorb strongly on metal as well as protein surfaces and have anti-corrosive properties of special interest for aerosol formulations. Surface activity is strongly dependent on the concentration of the un-ionized species or possibly a molecular complex $RCOOH.RCOO^-$ as in the case of soaps.

Oil Antioxidant

The discovery of two new chemical substances, MECSA and METSA, that preserve the flavor of cooking oils when added in quantities as small as 0.005 per cent was announced at the American Chemical Society's 16th Midwest Regional Meeting by A. W. Schwab and C. D. Evans, chemists at the Northern Utilization Research Branch of the U. S. Department of Agriculture, Peoria, Ill. The effectiveness of the preservatives was proved in tests on soybean oil and cottonseed oil.

Each of the compounds preserves flavor by forestalling the action of oxygen from the air, which makes the oils rancid. Such metals as iron and copper, present in oil in minute amounts, join with oxygen to cause rancidity, but through the process of chelation MECSA and METSA prevent this spoilage. The two compounds appeared to be equally effective in blocking the metals.

Although the new agents satisfy a long-felt need for a readily soluble nontoxic preservative that imparts no undesirable flavor, odor, or color, they tend to decompose when heated. They were tested successfully by adding them to the oil after the heat-treating phase in the processing. The chemical name for MECSA in mono-octadecyl ester of carboxymethylmercaptosuccinic acid. METSA is mono-octadecyl ester of thiosuccinic acid.

Sterilizing Eye Lotions

The eye lotions in the British National Formulary contain no preservative. Criticism of this state of affairs is expressed by M. Klein and co-workers (*J. Pharm. & Pharmacol.* 6:725, 1954) who express the view that in view of the increasing incidence of eye infections reported by different authorities from many parts of the world, more stringent standards seem desirable. They recommend that eyedrops used in hospital wards, outpatient departments and factory medical rooms should be prepared with bactericidal preservatives. For eyedrops used by individual patients a bacteriostatic agent may be permissible, but for reasons of safety and to make it as foolproof as possible a uniform procedure using a bactericidal preservative is recommended.

The quaternary ammonium compounds, although bactericidal, are not recommended because of their effect on the cornea. The mercurial compounds, merthiolate (0.005 per cent) and phenylmercuric acetate and nitrate (0.005 per cent), which are bactericidal, fungicidal, and nontoxic, are recommended for physostigmine and sodium fluorescein, which are most liable to contamination with Pseudomonas aeruginosa, and for methylcellulose eyedrops, which are likely to be contaminated by molds. Although a saturated solution (about 0.8 per cent) of chlorbutanol is safe and recommended, its use requires great care, as it cannot be heated without detriment. Chlorocresol, 0.1 per cent, is safe but causes smarting in this concentration; 0.03 per cent kills P. aeruginosa within 24 hours. The *p*-hydroxybenzoates in 0.1 per cent solution are reliable for most of the eyedrops, except fluorescein. Phenethyl alcohol is nontoxic in 0.5 per cent concentration but much quicker in action at 0.6 per cent. Further clinical trials are needed with this promising preservative. For cortisone eyedrops, 0.9 per cent benzyl alcohol is recommended.

INSIDE SCIENCE

The Vital Story of VITAMIN C

by Science Writer

What does vitamin C do for human beings?

Medical research shows that it is essential in maintaining healthy bony tissue and for the formation of collagen which is the main supportive protein of skin, tendon, bone, cartilage and connective tissue. It is needed for vascular function and tissue respiration and in promoting the healing of wounds. In lactating women it has great importance in providing the infant with a sufficient amount of ascorbic acid to prevent scurvy, a disease to which very young babies are susceptible.

Much evidence is available in medical reports to show that a lack of this vital nutritive element can result in impaired health. And in those cases of frank scurvy which still occur, ascorbic acid is the specific medication.

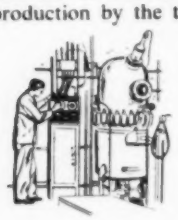
History. The history of vitamin C is fascinating. Scurvy, known for centuries, was once the most prevalent disease in Europe. It afflicted the Crusaders, decimated the crews of voyagers and armies, and plagued the colonists of the New World. In the 18th Century the antiscorbutic value of fresh vegetables and citrus fruits was recognized.

Isolation. It was not until 1918-25 that almost pure ascorbic acid was concentrated from the lemon by Zilva and its important properties and molecular composition established. In 1927 he concluded that this so-called "reducing factor" and the antiscorbutic principle were closely related. In 1928, Szent-Györgyi, who started investigations in 1921, isolated a strong reducing compound from adrenal glands, oranges, and cabbage and termed it "hexuronic acid."

Chemistry. The "reducing factor," "hexuronic acid," and vitamin C were all identified as the same in 1932 by various groups of workers. This was one year after C. G. King, by methods of organic chemistry and experimental physiology, established the chemical identification of vitamin C, thus fulfilling Budd's prediction of 90 years earlier that the antiscorbutic property of certain foods would ultimately be discovered to be a definite substance.

Synthesis. In 1933 Reichstein and his colleagues in Switzerland successfully synthesized ascorbic acid. Almost simultaneously in England Haworth and associates accomplished the same. The Reichstein synthesis formed the basis for large scale commercial production by the world-famous firm of Hoffmann-La Roche.

Production. Following these discoveries came the establishment of manufacturing operations so that today daily production by the tons is the rule. The figures are really staggering. The amount produced weekly in the U. S. A. averages over 15 tons, equivalent to that contained in over 200 million oranges. It is remarkable that ascorbic acid can be produced synthetically and sold for only about $21. per kilogram. One kilo is sufficient to supply 92 people for one year with the minimum daily requirements set by the U. S. Food and Drug Administration.



Vitamin C made by the Roche process is identical chemically and in biological activity with Nature's own product. Because vitamins can be manufactured at a much lower cost than if they were extracted from natural sources they are widely used in dietary supplements and pharmaceuticals. In fact, "New and Non-official Remedies," a publication of the American Medical Association for use by physicians states: "All pure ascorbic acid used in pharmaceutical products is prepared synthetically."

Ascorbic acid is present in many foods. Nature supplies some with lavish amounts and stints on others. In fact, wide variations* have been found in the vitamin C content in varieties of the same fruit.

Deficiencies. Many surveys have shown widespread vitamin C deficiencies in the population. Physicians may call these subclinical, but they are deficiencies nevertheless.

Because of these situations—natural variation and widespread deficiencies—diet experts believe that it is desirable and in the public interest to standardize the vitamin C content of processed fruit and vegetable juices by the addition of enough pure crystalline ascorbic acid to make them consistently dependable sources of this necessary food element. Some of these juices are: tomato, grape, orange, grapefruit, pineapple and apple.

Requirements. The U. S. Food & Drug Administration has set 30 milligrams as the adult minimum daily requirement of ascorbic acid. This daily intake is just about sufficient to prevent recognizable signs of vitamin C deficiencies although a subclinical or an unrecognized deficiency may exist. In view of this, the National Research Council has established 75 milligrams as the recommended daily male adult allowance and 70 mg. daily for female adults, which levels are supported by many controlled nutrition studies. However, the N. R. C. recommends 90 mg. daily for boys between 13 and 15, 100 mg. daily for boys between 16 and 20, and 150 mg. daily for lactating women.

This article is published in the interests of pharmaceutical manufacturers and food processors who make their good products better with essential, health-giving vitamin C. Reprints are freely available. Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. In Canada: Hoffmann-La Roche Ltd., 286 St. Paul Street, West; Montreal, Quebec.

*The table shows minimum and maximum levels of ascorbic acid in commercially canned juices. All figures are in milligrams per 100 grams of juice. Data from U. S. Department of Agriculture.

	Min.	*Max.*
Apple juice	0.2	3.6
Grape juice	0.0	4.7
Grapefruit juice	10.0	49.0
Orange juice	9.7	70.0
Pineapple juice	5.4	18.0
Tomato Juice	2.5	32.0

Abreast of the Markets

Essential Oil Developments

In keeping with the strong condition of the lemon oil market described here last month, the price of lemon oil advanced fifty cents a pound for the California material. Lime oil also advanced, to the extent of twenty cents per pound on both the Mexican and West Indian grades as demand for lime and other citrus oils is expected to improve as the Spring approaches. Peppermint and spearmint oils have been very firm for several weeks and the relative shortage of high test peppermint is expected to bring about an advance in the price of that oil.

The release of tension in the Formosa situation was most welcome to importers and users of citronella oil, as this island contributes the major share to the market. Last year 1,343,606 pounds of citronella oil were exported from Formosa, compared with exports of 141,008 pounds from Guatemala, and 40,930 pounds from Java. The importance of citronella oil, not only as an essential oil, but also as a starting material for the manufacture of numerous very important aromatic substances, makes adequate supplies of this oil of utmost importance to the perfume and cosmetic industry.

The Molasses Situation

Considering the ethyl alcohol market, which is still dependent to a marked degree on the market for Cuban molasses, we find that the Cubans sold a major part (79,500,000 gallons) of their molasses at 7.8 cents per pound f.o.b., this price applying to distillers and other buyers. Last year Cuba sold its entire exportable supply of 1954 molasses in March, amounting to 140,500,000 gallons, on a two-price basis. Molasses for manufacture of alcohol brought 7.8 cents per gallon, while molasses for animal feed and other purposes brought 8.5 cents per gallon. There was, however, an allowance of one-fourth cent per gallon if buyers took shipments prior to May 22 of that year.

In 1954 Cuba produced 131,200,000 gallons of invert molasses which it sold at a price of 1.25 cents per pound of sugar content. This was comparable to the 7.8 cents for blackstrap molasses.

Of the 1955 crop, 110,000,000 gallons have been earmarked for local use, and it is possible that 20,000,000 gallons may be added to this amount at a later date.

Tartrate Sales Brisk

Demand for cream of tartar and tartaric acid has increased considerably over the past few months. Industry members have attributed two factors to this development: a normal seasonal increase in tartrate purchases and an increasing difficulty in obtaining imported material.

Because the shipping prices for both of these items have been advancing slowly during the last six months, it is becoming more of a problem for foreign sources to compete with domestic producers of the acid and cream of tartar.

At the same time, producers in this country are also facing higher costs in obtaining argols, the basic raw material used in tartrate manufacture. Prices for this basic material are said to be about $50 higher per 1,000 kilos.

Buchu Leaves in Short Supply

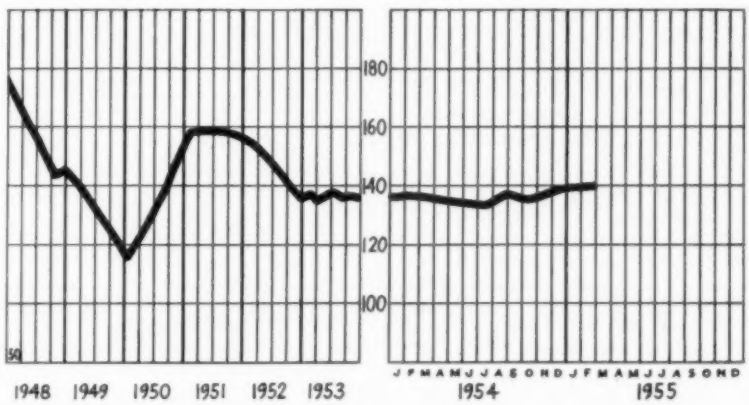
Spot stocks of buchu leaves are dwindling, say the dealers, and it is quite difficult to obtain replacements, since production at the origin is lower than normally expected.

Menthol Higher

Although recent reports indicated there was very little unsold menthol left in Brazil, more than 20 tons of the item arrived in New York last month within the period of one week. Consumer interest in menthol has died down, now that the warmer months are approaching. The price range of natural menthol extends from $8.25 to $8.35 a pound, with the synthetic material being quoted at $9.

In spite of the apparent lack of interest on the part of consumers, dealers expect menthol to advance further in the future, according to reports from the trade.

50 RAW MATERIALS—WEIGHTED PRICE INDEX. 1926=100.



The price index of fifty commodities for February advanced from 132.5 to 133.1.

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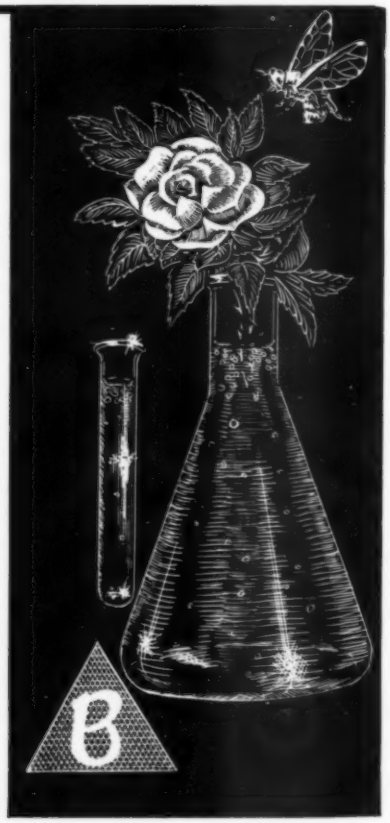

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Skin Research

In the years that I have been in and around the technical end of the cosmetic industry, I have watched it grow from an empirical technique utilizing primitive materials and primitive equipment to a full-scale branch of the chemical industry. Now, skilled chemical brains direct operations, and modern specialized tools and new chemical products are quickly adopted as soon as they become available. More slowly, however, have we become aware that the biological sciences have much to contribute to our field. We realize now that the skin is not an inert, impermeable barrier, but can be acted upon, sometimes unfavorably, by cosmetic ingredients. Valuable control techniques are coming out of medicine and dermatology to assure a larger measure of safety than ever before, but these are still not enough. We chemists must develop the conception of the skin as a living organism to which we can apply chemical knowledge and chemical methods to create changes that are more than skin deep.

This introduces a new department to be devoted to the skin—its physics, chemistry, biochemistry, physiology, pathology and all other considerations that will increase our practical knowledge of old and new cosmetic mechanisms. Each month I will abstract pertinent domestic and foreign literature and, as much as possible, will comment on subjects and papers of special interest to me and, I hope, to you.

Skin and Detergents

While the physiologic functions of the skin are by no means completely understood, is is almost universally agreed that the answer to the detergent problem rests upon determining how keratin, sweat and pH, water retention and diffusion, CO_2 diffusion, sebum, enzyme systems, and perhaps other functions of the skin are affected, according to a review by D. J. Birmingham (*Soc. Cosm. Chem.* Dec. 9, 1954).

The contributions of Burckhardt and others on alkali neutralization, whereby the skin is endowed with a buffering action, and the demonstration that detergents containing alkali tend to impede this inherent ability of the skin have been well accepted. Blank and Lane, in their publications, have cited numerous references emphasizing the fat-emulsifying properties of detergents and how the excessive removal of lipoids can lead to defatting, with loss of pliability of the skin. Blank further has recently suggested that the pliability of keratin is more dependent upon its content of water than oil. In addition, he emphasized the role played by air currents, humidity, and barometric pressure in the maintenance of normal keratin. Gaul and Underwood studied the action of dewpoint and barometric pressure on the skin. They were able to show conclusively that these factors have tremendous influence upon the hydration of the skin.

More recently, Van Scott and Lyon, experimenting with keratin, suggested that sulfhydryls are released from dried defatted keratin which has been suspended and incubated for two hours in one to ten per cent solutions of soap and detergents. They attributed the release of sulfhydryls to a denaturation of the protein contained within the keratin.

In addition to these observations, much research has been conducted on the mechanisms involving sweat and pH, sebum, keratin, and other physiologic functions of the skin.

Thus, it becomes immediately evident that a number of factors are involved in the cutaneous response to an environmental contactant such as a detergent.

Sweat Gland Stimulation

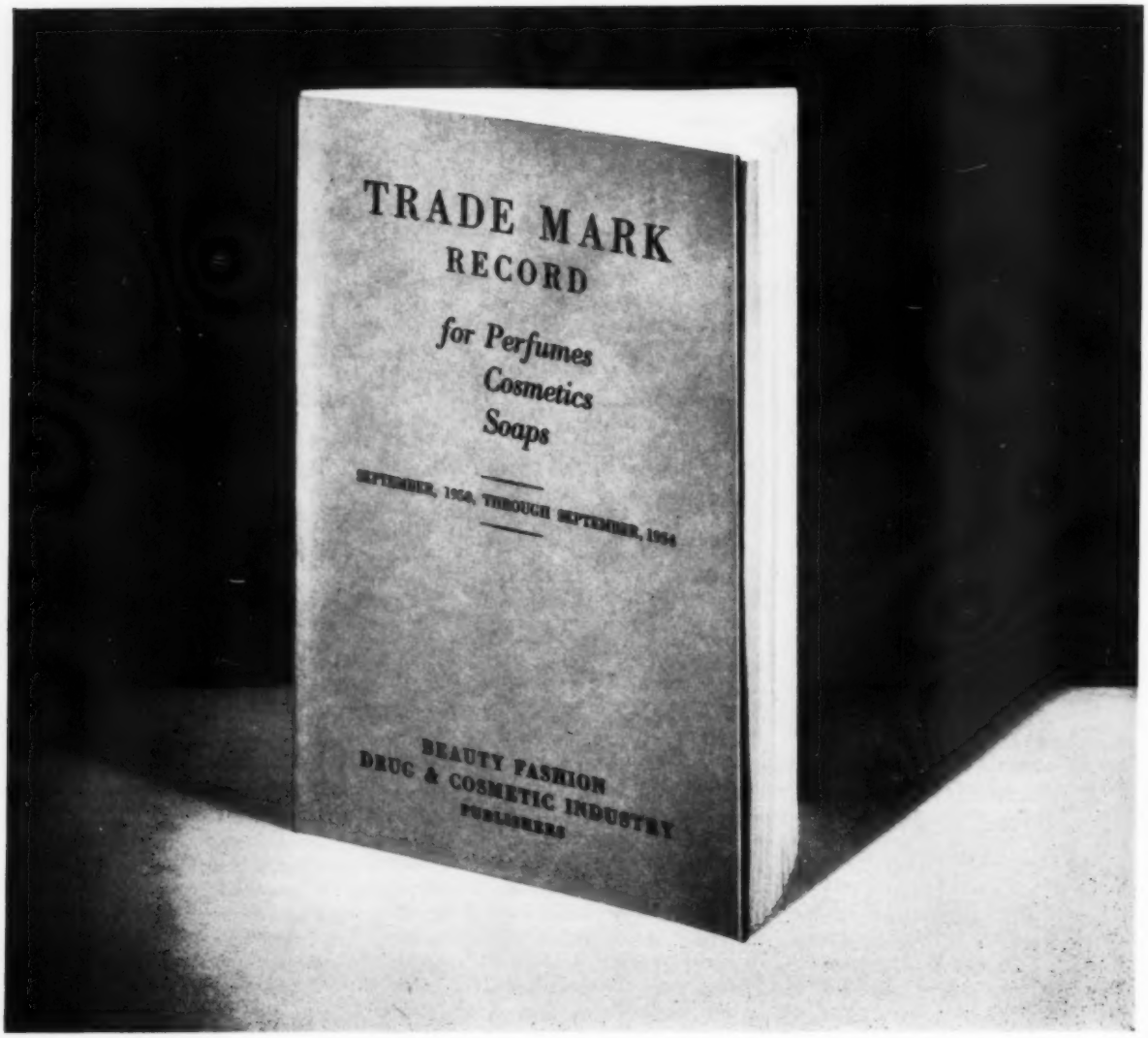
It has been clearly demonstrated that both epinephrine and acetylcholine activate sweat glands. This study was undertaken by S. M. Mellinkoff and R. R. Sonnenschein (*Science* 120:997, 1954) to determine whether acetylcholine and epinephrine stimulate the same sweat glands, or separate groups of glands, and to correlate the response to these stimuli with that evoked reflexly by heat.

The presence of perspiration was detected by the use of iodine-castor oil-starch on the identical skin surface of the forearm. This procedure was applied in the case of thermal sweating and in chemically induced sweating. In the latter case, the absence of thermal effects was verified and either acetylcholine chloride or epinephrine hydrochloride injected intradermally into the test area. When the sweating response was clearly represented by isolated black spots, a photograph of the test area was taken at a uniform magnification, using an instantaneous flash to avoid heating the arm.

Superimposition revealed the following facts: Some of the individual sweat glands were stimulated on one occasion and not on another, despite the reapplication of the same stimulus and the reappearance of an approximately equal number of black spots in the same area. The responsiveness of the glands appeared to be capricious. It was nevertheless clear that, despite individual variation, a very similar pattern of sweat glands was produced in each case by heat, epinephrine and acetylcholine. The visual impression was verified statistically.

This degree of similarity among patterns evoked by the three different stimuli would not be found if each stimulus involved a different set of sweat glands. The findings are consistent with the view that the same individual sweat glands are stimulated by epinephrine, acetylcholine and heat.

Comment: This useful investigation applies only to eccrine glands, since the area tested does not contain the apocrines and different results may be obtained where the latter are involved. This study might also be profitably followed up by examination of the area involved under moderate magnification in order to check as much as possible the activity of individual glands. A statistical study often lacks the complete validity that can be obtained by study of the individual components.



ANNOUNCEMENT

THE SECOND SUPPLEMENT to the Trade Mark Record for Perfumes, Cosmetics, and Soaps is now available.

This SECOND SUPPLEMENT brings the compilation of trade mark names up to October 1st, 1954.

All who purchased a copy of the Trade Mark Record and the First Supplement will want to keep their trade name records up to date by ordering a copy of the SECOND SUPPLEMENT at once.

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Epidermal Differentiation

Between the inner and outer surface of the epidermis, within a distance of about 1/1000 of an inch, numerous changes occur according to P. Flesch (*Soc. Cosm. Chem.* Dec. 9, 1954). Some of these changes are environmental, such as decreases in temperature, pH and water content, others are inherent in the epidermis itself. The latter can be studied from a morphological, physical or chemical point of view. Recent findings indicate that many of the conclusions reached from analyses of animal skin cannot be applied to human epidermis and that only a systematic study of human epidermal components will throw light upon the mechanism of epidermal differentiation. Such studies have been made possible by new methods used for the isolation, fractionation and identification of epidermal components. The application of these techniques has already yielded some promising results.

Buffer Capacity of Normal and Eczematous Skin

The behavior of the skin of persons with normal skin and with atopic eczema to contact with alkali was studied by T. Cornbleet and N. B. Joseph (*J. Invest. Dermatol.* 23:455, 1954) by potentiometric determinations of the reaction of their skin. Cationic exchange resins were employed to modify the effects of alkali and soap on the skin. Compared with normal skin, it was found that eczematous skin shows greater fluctuation in the alkali-acid reaction curve. It takes longer for eczematous skin to establish an equilibrium and to recover from alkali, so that such skin remains under the influence of alkali longer. Cationic exchange resin (hydrogen form) applied to the skin after contact with alkali and soap promptly acidifies the surface. Resin applied only before the use of alkali prevents extensive increase of pH, but may delay recovery to the acid state. Resins both before and afterwards prevent extreme alkalization and hasten recovery.

In the discussion, D. M. Pillsbury disagreed that Burckhardt had proved that the dermatitis of Burckhardt's patients was related to the failure of the skin to neutralize alkali. The acid mantle theory should be scrutinized before too ready acceptance. It is an attractive theory, but the intact stratum corneum is enormously resistant to very wide pH changes, from 2.0 to 12.5 for 48 hours or more. There is no real evidence that moderate variations from 4.5 to 7.5 really have any bad effects on either the intact or the non-intact stratum corneum.

Comment: Despite Dr. Pillsbury's questions as to the all-importance of the acid-mantle theory, it may well be useful to include the acid form of cationic exchange resins in acid lotions or creams to bring the skin surface more rapidly back to a normal acid pH. This addition might be in the form of the very finely ground resin, especially in hand lotions, but the usual lotion made with anionic emulsifiers would neutralize the resin. As an additional consideration, acid buffer systems might effectively provide the same type of action.

Skin Dimensions

M. Leider and C. M. Bunche (*A.M.A. Arch. Derm. Syph.* 69:563, 1954) summarize available published data and determinations of their own on the physical dimensions of the skin.

The total surface area for an average adult weighing 70 kg. and 170 cm. tall is 1.8 sq.m. or 20 sq. ft. A simple, rough method of remembering the surface area of the major regions of the body is the "rule of 9:" the head and neck constitute nine per cent of the total surface, each upper extremity comes to nine per cent, each lower extremity measures 18 per cent (two times nine per cent), the front and back halves of the trunk each amount to 18 per cent and the perineogenital region accounts for the remaining one per cent.

The average whole skin thickness is 2 mm., in which the epidermis is 0.12 mm., the corium 1.8 mm. and the hypoderm 0.08 mm. The total skin volume for an average adult is 3600 cc or 3.7 qts. The weight of the entire skin of an average adult is 4 kg. (8.8 lbs.) and the weight of the epidermis is 225 grams. The specific gravity of glabrous skin is 1.10, of hair is 1.31 and of nails is 1.30.

Lanolin Hypersensitivity

Despite its widespread use, lanolin seldom causes cutaneous hypersensitivity. Sulzberger established that the factor responsible for lanolin hypersensitivity was to be found in the alcholic fraction, but that neither cholesterol nor lanosterol was the causative agent.

J. E. Verall and E. V. Trouter (*J. Invest. Dermatol.* 22:493, 1954) reinvestigated this problem, using one hypersensitive subject for control purposes. On patch testing, lanolin acids were inactive while the lanolin alcohol fraction produced a positive reaction. The lanolin alcohols were treated with urea to form complexes with aliphatic alcohols, but not with sterols or triterpenols. The aliphatic fraction was inactive. The residual alcohols were chromatographed on alumina and further separation led to the isolation of a yellow glass which is the source of hypersensitivity. Acetylation of this glass gave a product which did not cause hypersensitivity.

Percutaneous Penetration

According to S. Rothman (*Soc. Cosm. Chem.* Dec. 9, 1954) absorption through the multilayered epidermis and through appendages can be distinguished. The development of radioautographic techniques has made it possible to distinguish these two pathways with different absorption mechanisms. The transepidermal absorption seems to have a monolayered barrier or partial barrier for electrolytes and for water. Lipid soluble substances with small molecular weight penetrate this barrier easily. While transepidermal absorption depends primarily on the chemical nature of the substance to be absorbed, transfollicular absorption depends also on the physical forces applied and present such as rubbing, surface tension and wetting. Whether absorption through intact skin can be promoted by choice of suitable vehicles is highly problematic. Little is known about absorbability of greasy ointment bases but available data indicate that it is negligible.

J. W. Hadgraft and G. F. Somers have devised a method of testing absorption of drugs through the intact skin, based on the action of eserine in depressing the activity of the enzyme cholinesterase in the rat. This animal when injected with acetylcholine secretes opaque reddish brown tears and its sensitivity is increased considerably by eserine. The response provides a convenient method for measuring percutaneous absorption and has been used in this present work to study the absorption of eserine and its salts from various ointment bases.

A comparison of absorption from petrolatum and peanut oil showed the relative potencies to be in the ratio 1 to 1.5. Comparisons have also been made of the absorption of eserine base from solutions in white petrolatum and in lard. Absorption was better from lard, the ratio being 1.5 to 1.0. A direct comparison of the absorption of eserine base from peanut oil and from castor oil, showed better absorption to occur from castor oil, the ratio being 1.7 to 1.

WORDS THAT WORK

(*Continued from page 323*)

by symbols, mathematical or otherwise, which give precision to the communication of ideas.

The messages we hope to communicate to others by oral, literal or pictorial means will not be received unless by one way or another we can make our recipients concentrate long enough to receive our opinions, suggestions and ideas. Since concentration is hard work and very few of us like to concentrate, we, who have something to communicate, must first concentrate ourselves, to be sure that we have considered all angles of the messages we wish to transmit. We must then concentrate on the means of transmittal to be certain that we can gain the concentrated attention of our audience. We must always remember that the minds of our audiences are insulated behind one or more barriers such as inattention, indifference, ignorance, preoccupation, stubbornness or antagonism. Since the mind does operate like a shuttle cock between consciousness and unconsciousness, we must try to entice it to and then snatch it when it has come past the barriers.

BEAUTY FASHION AWARDS

(*Continued from page 339*)

This is the sixteenth consecutive year that the Beauty Fashion Awards have been presented. They were chosen from the entire cosmetic field by a distinguished jury of 19 men and women who together combine years of experience in just about every phase of cosmetic retailing.

Elizabeth Arden winning package (Ardena Invisible Veil Powder) in contest.

RESESPINE IN PYSCHIATRIC TREAMENT

(*Continued from page 329*)

lucinations and by increased sociability and amenability to other psychiatric treatment.

The most important therapeutic consideration is the dose of drug given the individual patient. The optimal

GUMS
(CRUDE, POWDERED)
ARABIC
GHATTI
KARAYA
(INDIAN)
LOCUST
(CAROB FLOUR)
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amount appears to be directly proportional to the severity of the mental illness. Mild schizophrenics may respond to daily doses of 1-2 mg. orally, but the majority of chronic schizophrenics require initiation of therapy with parenteral doses of 5 mg. daily and maintenance doses of 2 to 6 mg. orally each day. A relatively high percentage (54 per cent) of patients treated in this fashion showed moderate or marked improvement. Duration of treatment is less important than dosage level, despite the fact that a few patients may require two months or more of treatment before improvement is observed. The shorter the duration of the illness, the more likely a good result will be obtained.

Complications of therapy were slight; treatment was discontinued in only one patient. Four patients in this series had been scheduled for leucotomy, but were not operated on because of favorable response to the drug. A number of other patients were managed through periods of disturbed behavior by use of reserpine rather by electroconvulsive therapy. The need for leucotomy and the convulsive therapies may decrease with increased and proper use of reserpine.

The results of treatment of approximately 225 mentally ill patients using oral and/or intramuscular reserpine were presented by D. C. Tasher and M. W. Chermak. All of the patients included were in the chronic schizophrenic diagnostic category.

The group of shock-reversible women, approximately 100 in number, had been receiving one or two electroconvulsive treatments per week for periods ranging from several months to several years. This was because of the need to control chronic irritable, assaultive or destructive behavior, or because of their tendency to relapse into severely withdrawn, anorectic states.

All of these have been successfully discontinued from electroconvulsive therapy after initiation of reserpine therapy and have improved in varying degrees ranging from better institutional adjustment to complete social recovery and discharge from the hospital.

A second group of 88 shock resistant women and 36 shock resistant men were started on reserpine early in November, 1954. These patients are all long-term institutional patients, ranging up to 15 or 20 years. All have had various types of treatment through the years, ranging from metrazol, through electroconvulsive therapy and insulin and a considerable number who have had many other types of intensive and psychotherapeutic treatment. These are all severely regressed patients, but improvement is already noticeable in many. This is limited so far to reversal of combativeness, reversal of untidiness, increased socialization, etc. The authors conclude that reserpine will prove to be a valuable aid to the overcrowded state hospital where the alarming increase in occupants makes easily administered mass therapy a necessity.

A paper by W. L. Kirkpatrick and F. Sanders discusses the clinical effects of reserpine on selected groups of psychiatric disorders studied at the East Louisiana State Hospital. The study included 210 patients of all

(Continued on page 403)

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Dyes for coloring human skin must be selected from the certified color list and the ones we find listed are D&C Brown No. 1, Resorcine Brown Y, light orange brown, slightly soluble in alcohol, slightly soluble in acetone and soluble in glycol; Ext. D&C Black No. 1, Coomassie Fast Black B, blue black; and D&C Black No. 1, Naphthol Blue Black, slightly greenish blue black. Both the black dyes are soluble in glycol, slightly soluble in alcohol and only very slightly soluble in acetone. Solubility can be increased considerably by the addition of water to your solvent mixture; some range in shade is probably possible by mixing various proportions of these dyes. For a wider range of shades, however, you may have to make use of combinations of other dyes.

Deodorant Stick Formulas: *Can you please provide me with formulas for antiperspirant and deodorant sticks that are non-evaporating and non greasy.* ALBANY.

I am afraid I can provide you only with experimental ideas for working out the type of products you want. First, for antiperspirant action, about five to 10 per cent of a aluminum oxychloride is quite effective and with a relatively low incidence of irritation and sensitization. Addition of a small proportion of a quaternary bacteriostatic agent (from 0.1 to 0.5 per cent) should have useful potentiating action with respect to deodorant and even antiperspirant activity. For a deodorant use the quaternary in combination with chlorinated dihydroxydiphenylmethane. Usual deodorant sticks are based upon gels made from sodium stearate and alcohol (which evaporates) or mixtures of waxes and oils (which are greasy). An experimental combination that seems promising is the use of a combination of Carbowax 6000 or 4000 with polyethylene glycols and the

inclusion of a small amount of water, varied until the desired consistency and application properties are obtained for the molded stick. It may be desirable to add a certain proportion of sodium stearate to improve the molding properties. Soaps, however, are incompatible with aluminum and quaternary ammonium salts and these combinations should be avoided.

Dextromethorphan: *I am interested in knowing the name and address of the manufacturer of the compound "Dextromethorphan" mentioned in an article published in October 1954.* MONTEVIDEO.

Dextromethorphan is a patented specialty produced by Hoffmann-La Roche, Inc. of Nutley, N. J. You may write to that company for further information.

Timed Disintegration Granules: *We are most interested in obtaining information concerning the manufacture of confectioners' decorative type candies. This item has recently found widespread use in controlled time-disintegration medicaments. We would appreciate any references you might be able to offer and your comments indicating methods of building up a nucleus with sugar solution will receive our careful attention.* CHICAGO.

The product you mention is becoming increasingly popular as a pharmaceutical dosage form, and rightly so, since it permits a single relatively small dose of a short duration drug to be active over a prolonged period of time. Nothing, to our knowledge, has been published concerning manufacturing methods and we can only give a few general observations. The desired medicament should be granulated and then passed through a relatively fine screen, in order to form very small, preferably rather hard granules. These are then treated in a coating pan with very small portions of sugar solution until small pellets begin to form. Sticking together of the granules will be a problem and might be reduced by alternate use of sugar and precipitated chalk or blanc fixe. As you are probably aware, the pellets should be made in several disintegration time grades: the first group may be simple sugar coated for immediate disintegration in the stomach, the second will be somewhat delayed by a partial enteric coating and the third will have a full enteric coating for intestinal disintegration. After testing for average disintegration times, the different granules will be mixed thoroughly in the required proportions and filled to the correct weight in either hard gelatin or methylcellulose capsules.

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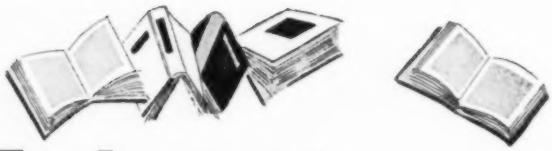

Industry's Books...

Practical Physiological Chemistry, *by Philip B. Hawk, Ph.D., President, Food Research Laboratories, Inc., Bernard L. Oser, Ph.D., Director, Food Research Laboratories, Inc., and William H. Summerson, Ph.D., Chief, Biochemistry Div., Chemical Corps Medical Laboratories, with Collaborators, Thirteenth Ed., (1954), 1439 pp., The Blakiston Co., Inc., New York, Cloth,* **$12.** Certain chapters, such as those dealing with Nucleic Acids and Nucleoproteins (Chapter 7), Milk (Chapter 8), Musisotopes (Chapter 32), have been exhaustively rewritten. To other chapters major additions have been made, as for example Chapter 18 to which a section on Liver Function has been added, and Chapter 23 which now contains a section on Microclinical Chemistry.

A unique and valuable section has also been added on the use of micromethods in clinical chemistry, with detailed procedures and descriptions of apparatus.

Adhesive Bonding of Metals, *by George Epstein, Research Engineer North American Aviation, Inc., 218 pp., pocket size, Reinhold Publishing Corp., New York (1954), Cloth,* **$2.95** It is the purpose of this book to give sufficient details so that an engineer or technician faced with the problem of joining two materials will be able to determine if an adhesive-bonded joint would be advantageous, what type of adhesive to select, how to employ the adhesive, and how to design the joint for optimum performance.

The Manual of Antibiotics (1954-1955), *Edited by Henry Welch, Ph.D., Published by Medical Encyclopedia, Inc., New York, Distributed by American Pharmaceutical Association, Washington, D.C., 87 pp.,* **$2** *to members of the A. Ph. A.,* **$2.50** *to non-members.* There are listed in this volume all of the presently commercially available antibiotic preparations. These are tabulated alphabetically by their generic terms. The trade names given to these products by each manufacturer are listed side by side with the generic equivalent., Under each of the generic terms the general indications for each drug preparation are shown. For ready reference these antibiotic preparations are alphabetically tabulated, both by trade and generic terms, in separate indices and an index of all manufacturers with their addresses is also included.

Monomeric Acrylic Esters, *by E. H. Riddle, Rohm & Haas Co., 221 pp., Book Dir., Reinhold Publishing Corp., New York,* (1954), *Cloth,* **$5.** Written by a group of research chemists and chemical engineers at Rohm & Haas Co., this book provides a great deal of up-to-date information on commercially available acrylate and methacrylate esters.

Recent advances are covered in all chapters, and particular attention is given to the latest theories of polymerization and copolymerization mechanisms involving monomeric acrylic esters.

Laboratory Aids in Endocrine Diagnosis, *by Roberto F. Escamilla, M.D., Associate Clinical Professor of Medicine, University of California Medical School, 131 pp., Illus., Charles C. Thomas—Publisher, Springfield, Ill.,* (1954), *cloth,* **$4.75.** These tests can be most helpful and even definitive in diagnosis.

Included are: Routine laboratory tests. Special blood tests. Special tests of urine. Basal metabolic rate. Radioactive-iodine uptake. Gastric analysis. Electrocardiogram. Blood pressure tests. Boentgen-ray Examinations. Urine hormone tests. Vaginal smear. Cervical mucus. Endometrial biopsy. Semen examination. Testis biopsy.

The Structures and Reactions of the Aromatic Compounds, *by G. M. Badger, D.Sc., Ph.D., Reader in Chemistry in the University of Adelaide, 456 pp., Cambridge University Press, New York,* (1954), *cloth,* **$11.50.** This is the first book to be devoted to the fundamental properties of the aromatic compounds as a whole. It describes the experimental and theoretical attempts to explain their structure and discusses their characteristic properties and the mechanism of their reactions.

The Eczemas, A Symposium by Ten Authors, *Edited by L. J. A. Loewenthal, M.D., Lecturer in Dermatology, University of Witwatersrand, 267 pp., Illus., The Williams & Wilkins Co., Baltimore,* (1954), *cloth,* **$7.50.**

Much recent research is presented here by some of the leading workers and should help to remove the unjust stigma of empiricism from dermatology.

Wool—Its Chemistry and Physics, *by Peter Alexander, Ph.D., Chester Beatty Research Institute, Royal Cancer Hospital, and Robert F. Hudson, Ph.D., Chemistry Department, Queen Mary College, University of London, 404 pp., Illus., Reinhold Publishing Corp., New York,* (1954), *Cloth,* **$10.** Written by two leading English textile chemists, this new book is the first comprehensive treatment of the chemical, physical and biological characteristics of wool ever published.

Practical industrial applications of the basic physics and chemistry are fully explored. Diffusion processes and molecular absorption are treated in unusual detail since these subjects are of exceptional current interest to the textile industry.

(Continued on page 403)

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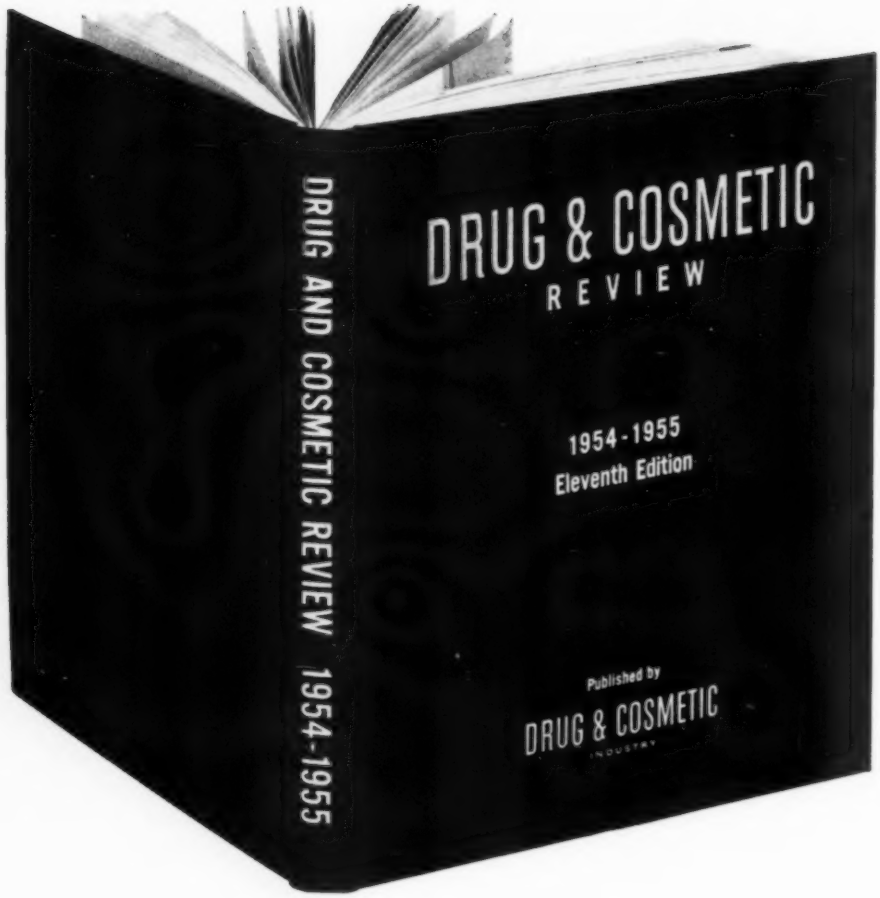

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(Continued from page 397)

types; electroshock therapy was used in conjunction with reserpine in some cases and in the epileptic and tuberculous groups reserpine was merely added to the already existing therapeutic regime.

Results were significant and in some cases startling. A tranquilizing effect was noted in almost all cases. In many cases there was a marked change in the patient with reversal of the psychotic process; the drug was also used in three cases of status epilepticus with promising results. In several patients with involuntary tremor there was a marked decrease in the tremor and there was considerable mental and physical improvement in several of the psychotic tuberculous patients.

Initial work with chlorpromazine by V. Kinross-Wright led to the adoption of a rapid and intensive treatment program with doses ranging up to 4 grams daily. Reserpine was at first used in similar fashion with doses of up to 60 milligrams a day but because of toxic effects it was found necessary to use smaller doses over longer periods of the latter drug. Some patients received combinations of the two substances, with greater success than either used singly.

The side effects are more numerous with chlorpromazine, especially those of an allergic nature. Both produce Parkinsonism which is reversible. There were no deaths directly attributable to the medication.

Both drugs have a profound quieting effect on all disturbed patients without disturbance of the sensorium. With the continuation of adequate dosage this progresses to improvement or relief of the psychosis in many cases. It is felt that complete remissions have been achieved in chronic psychotics. These patients have been followed for a year in some instances. Chlorpromazine has been more effective in relieving basic psychotic symptomatology in both schizophrenic and depressive patients. Reserpine was very effective in several intractable manic patients.

While the two drugs have many properties in common their clinical effect in large doses is often dissimilar.

With the recent publications of optimistic first reports of the tranquilizing effect of reserpine, the United States Air Force Office of the Surgeon General was quick to initiate research into its clinical application for neuropsychiatric patients. Sedation of these patients is a problem, for acutely disturbed psychotics have on occasion become a threat with their violent behavior in flight.

At Travers Air Force Base, some 300 psychotic patients were given 5 mg. reserpine I.M. by J. C. Schraeder and R. R. Luttrell to investigate the tranquilizing effect in flight. As had been reported by Noce and Williams acutely disturbed psychotics were often remarkably changed from being hyperactive, combative, and uncooperative to be relatively quiet, sociable, and cooperative. Deeply regressed patients often showed little response to the drug. Depressed patients frequently became more depressed. Severe malaise along with nausea, vomiting, diarrhea, and muscle aches was found

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to be greater than anticipated. The tranquility was found to be composed of mild euphoria plus indifference in many cases.

Thirty-two infants varying in age from six weeks to one year who presented hyperactivity, and irritability associated with bizarre sleeping patterns and mild growth failure were treated by M. W. Talbot with reserpine in an endeavor to secure more nearly normal behavior.

Improvement was noted in 29 of the 32 cases with initial effects apparent in one to four days. Complete remission of irritable behavior was noted in 19 cases, marked improvement in seven and moderate improvement in three. Sleeping patterns in all cases (21) in which they were disturbed returned to normal; aberrations in eating habits, where present (eight cases), also improved. The mean weight increased during therapy in the successful cases. Of the three failures, two did not tolerate the medication in effective doses, manifesting severe abdominal cramping which was relieved by reduction in dosage. No other side effects were seen and in no case was somnolence a factor.

Oral reserpine in the private practice of office psychiatry was studied by F. G. Ebaugh and F. R. Drake. Twenty-eight patients were treated with various doses of reserpine over a period of time varying from one month to six months. Reserpine was very effective in anxiety states which are characterized mainly by the presence of "free-floating" anxiety states without depression. The more such anxiety states were complicated by depressive features the less likely was reserpine to be effective in alleviating the symptomatology. Psychopathic personalities, who tend to have little capacity for the development of feelings of guilt, self-condemnation and depression, seem to develop simple anxiety reactions which are readily amenable to reserpine. Their anxiety reactions are primarily due to repressed hostility and resentment. The "pure" neurotic patient, however, tends to have a depressive component to his anxiety reaction which is accentuated by the sedative effect of reserpine.

Two cases of obsessive reaction with recurring disturbing thoughts and ideas were considerably helped by moderate doses of reserpine. Their obsessive thoughts occurred with about the same frequency after reserpine but were no longer disturbing to them. One patient with compulsive hand-washing reported that reserpine reduced the intensity of the recurring impulse to such a degree that it was no longer a problem to her.

Reserpine is an ideal temporary non-habit forming sedative to administer to patients who have just been discharged from the hospital following electroconvulsive and or insulin therapy. Some of these patients are somewhat tense, insecure and anxious for days or weeks following such discharge.

Two hypomanic patients were sufficiently well controlled on reserpine to continue their occupations without the necessity of hospitalization of electroconvulsive therapy.

A report by S. K. Smith is concerned with 50 cases currently receiving reserpine. Included in the study are anxiety states, a few compulsive-obsessive syndromes, several neurasthenics, three paranoid states of pre-institutional severity, and one manic-depressive psychosis privately hospitalized.

This preliminary report suggests the following conclusions: Reserpine has a beneficial effect in the treatment of nonpsychotic cases encountered in the private practice of psychiatry. A similar result has been observed in a smaller number of noninstitutionalized early psychoses and in one manic-depressive psychosis. There is in interrelationship among the beneficial results, severity and duration of the disorder, and the duration of therapy. The majority of the group has shown a prompt decrease in neuromuscular tension and a lessening of anxiety, together with the accompanying physical and emotional concomitants. The lessened tension-anxiety level, with the resulting improvement in attitude, has made these patients more accessible to psychotherapy. It appears that we may be at the beginning of a new and better integration between the several therapies that together constitute psychiatry.

A real problem according to V. S. Lambros most neurologists or neurosurgeons have had in the treatment of convulsives is to allay a certain amount of irritability, moodiness or personality changes following the control of convulsions. Anticonvulsant medication has been effective up to a point. Thereafter, any increase in the medication would add only to the sluggishness of the patient without materially affecting the excessive irritability. In many the irritability and moodiness would be increased.

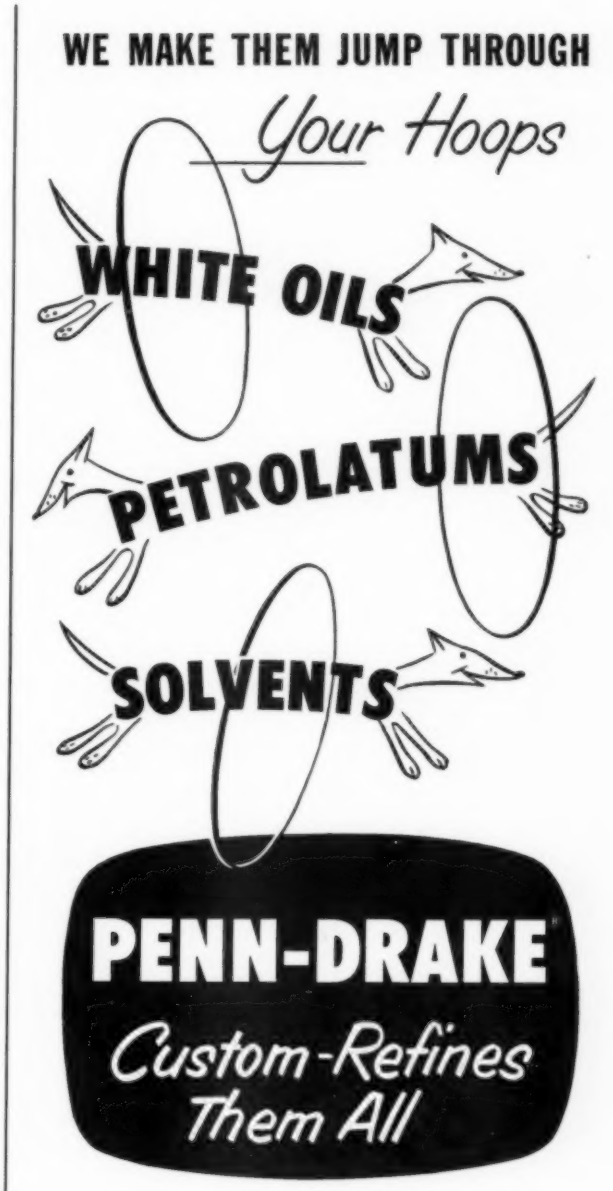
There was a total of 220 cases so treated—104 were adults and 116 were below the age of 14. In the normal blood pressure patient no alteration was noted at any time. In the associated hypertensive, the blood pressure was always reduced to a satisfactory level. The children did not show any material change in pressure. The dosage varied from 0.25 mgm. of reserpine to 1.5 mgm. per day.

The side effects were as follows: One patient had nausea accompanied by diarrhea, one patient had a looseness of the bowels and she eventually had to stop the reserpine. Eleven patients had a hypnotic or sedative effect which was controlled by a reduction in dose.

The immediate and lasting effects were a constant and predictable personality. The tranquility was noticeable and corroborated by the families, friends and coworkers.

Head injuries produce a varying amount of irritability both in the conscious and unconscious patient. There has been an ever pressing need for a medicine which would not depress respiration, produce any neurological changes nor affect the state of consciousness. With the advent of reserpine, such a wish seems to be fulfilled.

A total of 17 cases were treated with reserpine with extremely satisfactory results. No adverse effects have been noticeable.



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* *The Dispensatory of the United States of America, 1950 Edition*

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Children with enuresis have been a problem from ancient days. Many of these children have an associated hyperkineticism. Reserpine was given to 16 consecutive enuretic children who came to the office. With no medication except reserpine, no restriction of fluids or any other treatment, 15 children stopped wetting the bed within three days on a dosage which averaged 0.75 mgm. of reserpine per day. This relief has continued to the present, some cases being controlled now for three months and the longest eight months.

A series of 60 patients with various dermatoses in whom there was an uncontrollable urge to scratch or in whom a tension or "nervous" factor contributed to the cutaneous disorder were selected by C. R. Rein and J. J. Goodman for this clinical evaluation. Each patient took 0.25 mg. of reserpine four times a day for one month. Forty of the 60 patients experienced definite relaxation, tranquilization and slept better. Side effects included nasal congestion, increased appetite, depression, dreams, nocturia, dyspnea, weakness and nausea. There was no significant blood pressure or pulse change noted in the normotensive individuals. The authors are of the opinion that reserpine is another drug to be added to the armamentarium of the dermatologist when in need of a tranquilizing and relaxing agent.

Clinical and laboratory studies were made by M. S. Segal and E. Attinger in 59 patients with chronic bronchial asthma and chronic pulmonary emphysema. The clinical observations consisted of evaluating the effects of oral reserpine in doses of 0.1 to 0.25 mg., administered three times daily over periods of two weeks to six months in 56 patients. All of these patients required aminophyllin and bronchodilator aerosols for symptomatic control. Thirty-two patients received in addition Corticosteroid therapy and six received intravenous ACTH.

INDUSTRY'S BOOKS

(Continued from page 401)

Organic Syntheses, *Vol. 34, William S. Johnson, Editor-in-Chief and Advisory Board, 121 pp., John Wiley & Sons, Inc., New York, (1954), Cloth,* **$3.50** This is an annual publication of satisfactory methods for the preparation of organic chemicals. This volume 34 includes methods for: 2-p-Acetylphenylhydroquinone, Azelanitrile, B - (o - Carboxyphenyl) propionic Acid, Cetylmalonic Ester, 2-Chloro-1,1,2-Trifluoroethyl Ethyl Ether, Chloroheptanone, Di-tert-Butyl Malonate, 3,4-Dihydro-2-Methoxy-4-Methyl-2H-Pyan, 9,10-Dihydrophenanthrene, p,p'-Dinitrobibenzyl, 1,4-Dinitrobutane, Dimethylfurazan, Diphenylacetylene, Diphenyl Succinate, Ethoxyacetylene, Ethyl Chlorofluoroacetate, Ethyl Enanthylsuccinate, Ethyl b,b-Pentamethyleneglycidate, Hemimellitene, o-Methylbenzyl Alcohol, 2-Methylbenzyldimethylamine, N - Methyl - 1,2, - Diphenylethylamine and Hydrochloride, Methylisourea Hydrochloride, 3-Methyl-1,5-pentanediol, 3-Methylthiophene, Phenanthrenequinone, 1-Phenylpiperidine,

o-Phthalaldehyde, Sodium b-Styrenesulfonate and b-Styrenesulfonyl Chloride, Tetralin Hydroperoxide, p-Toluenesulfinyl Chloride, p-Tolylsulfonylmethylnitrosamide, o-Xylylene Dibromide.

Laboratory Manual on Fundamental Principles of Bacteriology, *A. J. Salle, B.S., M.S., Ph.D., Professor of Bacteriology, University of California, Fourth Ed., 176 pp., McGraw-Hill book Co., New York, (1954), Cloth,* **$3.50.** Although this manual may be used with any textbook, it is written to accompany the fourth edition of the author's "Fundamental Principles of Bacteriology." The experimental procedures are based on important fundamental principles and facts that a student should acquire before proceeding to more advanced work in the field. The manual has been revised to bring the experimental procedures up to date. Many of the questions found at the end of each exercise are based on the material appearing in the author's textbook and may be answered by consulting that book.

Titanium and Titanium Alloys, *by John L. Everhart, Associate Editor, Materials & Methods, 184 pp., pocket size, Book Dir., Reinhold Publishing Corp., New York, (1954), Cloth,* **$3.** In the few years since titanium became a commercial metal, hundreds of papers have been published dealing with the metal. These papers are scattered through the transactions of a number of scientific and technical Societies and through many business publications. It is the purpose of this book to present a selective review of the work covered in these publications and to supplement it with information obtained from the producers of the commercial materials.

Plastics Engineering Handbook of the Society of the Plastics Industry Inc., *813 pp., Book Dir., Reinhold Publishing Corp., New York, (1954), Cloth,* **$15.** Completely re-written, this greatly expanded edition of the well-known SPI Handbook represents a new landmark in the literature of the plastics industry.

Complete chapters of all new material have been added, such as the chapter on Tooling With Plastics which describes the newly-developed uses of plastics in production tools for the aeronautical, automotive and other massproducing industries. Another important innovation is the special fold-out adhesives chart found in the chapter on Cementing and Assembly.

Antiseptics, Disinfectants, Fungicides, and Chemical and Physical Sterilization, *Edited by George F. Reddish, Ph.D., St. Louis College of Pharmacy and Allied Sciences, and 30 Contributors, 841 pp., Illus., Lea & Febiger, Phila., (1954) Cloth,* **$15.** All pertinent information relative to antiseptics, disinfectants and fungicides, as well as chemical and physical methods of sterilization, is set down and evaluated in this book. It represents the combined efforts

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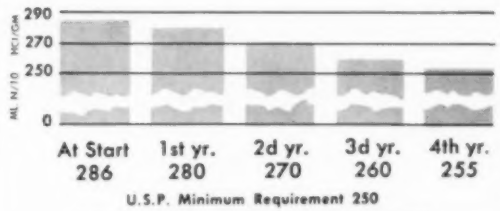

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of a great many authorities who cover the most important facts relating to antimicrobic agents generally, exclusive of antibiotics and chemotherapeutic drugs. Iodine, the mercurials, alcohols and other antiseptics are discussed first, followed by disinfectants and fungistats and fungicides. Of special interest to the food and pharmaceutical industries is the process of sterilization by ionizing radiations. This new development is explained in detail and is a method which should solve many existing problems in these fields. Preservatives and pasteurization are discussed separately with stress on the importance of both procedures in public health activities.

The Physician and His Practice *Edited by Joseph Garland, M.D., Editor, The New England Journal of Medicine, eighteen contributors, 270 pp., Little Brown and Co., Boston, (1954), Cloth,* **$5.** This book has been planned primarily as a source book of information regarding the career of the physician rather than as a detailed guide for him. A proper emphasis is placed on the character and personality of the physician and the standards that are expected of him—and of his wife—in relation to the two important circles in which they move: the intimate family circle and the larger community one.

Hormones, Health, And Happiness, *by Warren Henry Orr, M.D., 322 pp., The Macmillan Co., New York, (1954), Cloth,* **$4.50** This work discusses with clarity the origin, nature, and effects of hormones in the human male and female—from childhood to old age. The various glands of internal secretion, also called endocrine or ductless glands, are treated in separate chapters, and special attention is paid to the causes and manifestations of glandular imbalance. Case histories describe the transition from abnormality to health, and demonstrate how serious defects in adult life can be prevented through early recognition of glandular dysfunction in childhood.

Principles and Practice of Antibiotic Therapy, *by Henry Welch and Collaborators, 699 pp., Blakiston Co., New York, (1954), Cloth,* **$12.00.** This presents a concise, systematic, and clinically oriented practical guide covering every phase of antibiotic therapy. Included are numerous charts and graphs describing blood concentrations, sensitivity of micro-organisms to antibiotics, absorption and excretion, as well as a thorough therapeutic guide for quick references. The first half of this book is concerned with the vivid history of the cyclonic evolution of antibiotics and a record of the latest experimental and research developments. The second, written by *16* outstanding authorities, presents the practical and applied uses of antibiotics in various medical specialties.

Accepted Dental Remedies (1955), *207 pp., American Dental Association, Chicago, Paper bound,* **$2.** This work is published annually by the American Dental Association. It is designed to serve as a handbook of

dental therapeutics. It also contains a list of therapeutic products marketed in the United States which are acceptable to the Council on Dental Therapeutics. In addition it includes the Council's provisions for acceptance of products, some information on standardizing agencies, and on prescription writing.

An Introduction to Industrial Mycology, *by George Smith, M.Sc., F.R.I.C., Lecturer, Department of Biochemistry, London School of Hygiene and Tropical Medicine, Fourth Ed., 378 pp., Illus., Edward Arnold (Publishers) Ltd., London, (1954), Cloth,* **$6.00** The only available guide to industrial mould identification and control was introduced in the U. S. in 1946: An Introduction to Industrial Mycology, by George Smith. This is still the only book in English dealing with the fungi which are important to industry. The text of the new fourth edition, completely revised and largely rewritten, describes and illustrates most of the genera of moulds which regularly occur in industrial products, with detailed information of those fungi of greatest importance. Chapters on laboratory methods will enable a reader without biological training and without personal instruction, to set up a small laboratory for identifying and studying mould growths.

Packaging Engineering, *by Louis C. Barail, Consulting Packaging Engineer, 407 pp., Illus., Reinhold Publishing Corp., New York, (1954), cloth,* **$9.50.** This is the first book to describe all packaging materials, their best uses, and the methods employed by packaging engineers to obtain the most efficient results at the lowest possible cost. Over 150 photographs, drawings and tables illustrate a vast range of valuable working information on types of containers, machinery, package design, protection against deterioration, labeling, testing, and all other design and engineering aspects. Newest developments are described in each chapter. Very recent materials and methods form an invaluable separate chapter at the end of the book.

The Female Sex Hormones, *by Leon J. DeMerre, Ph.D., 219 pp., Vantage Press, Inc., New York, (1954), cloth,* **$3.50.** Some of the topics discussed in this book are the relations of hormones to the following: the first and subsequent menses, childbirth, breast feeding, sterility and fertility, growth, the development of the primary sex organs and the secondary sex characteristics, and other glands. Other deal with the hormonal treatment of deficiencies and dysfunctions of pituitary origin in the sexual and reproductive functions. Can be understood by the layman.

Introduction to the Chemistry of Enzymes, *by Keith J. Laidler, Associate Professor of Chemistry, The Catholic University of America, 268 pp., McGraw-Hill Book Company, Inc., New York, (1954), Cloth,* **$5.**

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undergraduate level, a general introductory account of the chemical properties of enzymes. The author has kept in close focus the needs of the biologist desiring adequate knowledge of the chemical aspects of his subject and those of the physical chemist who wants to learn something of enzymes with a view to applying his special techniques to their study. Enzymes are treated from a mechanistic point of view and throughout the text the author attempts to explain their modes of action.

Atomic and Free Radical Reactions, *by E. W. R. Steacie, President, National Research Council of Canada, Vol. I, Second Ed., Vol. II, Second Ed., 901 pp., Reinhold Publishing Corp., New York, (1954), cloth,* **$28.** Published in two volumes, this new edition includes the vast quantity of data which has appeared since original publication in *1946*. This monograph offers the most complete information available on the rates of elementary organic reactions in the gas phase whether from thermal, photochemical or other origin. Contained in Volume I are experimental methods, bond dissociation energies, free radicals in thermal reactions, and free radicals in photochemical reactions. Volume II covers types of elementary reaction and systems containing carbon and hydrogen, oxygen, nitrogen, chlorine and fluorine, bromine, iodine, sodium, other metals or sulfur.

Basic Botany, *by Fred W. Emerson, Ph.D., Botanical Consultant; Formerly Professor of Botany, New Mexico Highlands University, Second Ed., Illus., 425 pp., The Blakiston Company, Inc., New York, (1954), Cloth,* **$5.** The plan and content of this work have been determined by the experience of the author, who has taught and carried on research in a rather wide range of educational institutions and climatic conditions. As far as possible, living plants, especially those with which the student is likely to be familiar, have been selected as illustrative material.

Clinical Chemistry in Practical Medicine, *by C. P. Stewart, D.Sc., Ph.D., Reader in clinical chemistry, University of Edinburgh, and D. M. Dunlop, B.A., M.D., Christison Professor of Therapeutics and Clinical Medicine, University of Edinburgh, Fourth Ed. 320 pp., E. & S. Livingstone Ltd., Edinburgh, (1954), cloth,* **$5.00.** No student or practitioner can be regarded as well equipped today who does not possess a knowledge of the circumstances in which a chemical examination may be of service, of the interpretation and significance to be placed upon the results of such an examination, and of the technique of obtaining the specimens to be sent to the laboratory for analysis. In order to appreciate the rationale of chemical pathology in its application to practical medicine, it would also be ideal for him to have a broad knowledge of how the various chemical analyses are carried out, and a detailed knowledge of the method of performing many of the simpler tests which do not require much time or equipment, and which may be performed, if he so wishes, in his own surgery or hospital side-room. This book has been written with a view to giving information on these points to the practitioner, the house physician, and the senior student.

Antiseptics, Disinfectants, Fungicides, and Chemical and Physical Sterilization, *Edited by George F. Reddish, Ph. D., St. Louis College of Pharmacy and Allied Sciences, and 30 Contributors, 841 pp., Illus., Lea & Febiger, Phila., (1954), Cloth,* **$15.**

All pertinent information relative to antiseptics, disinfectants and fungicides, as well as chemical and physical methods of sterilization, is set down and evaluated in this book. It represents the combined efforts of a great many authorities who cover the most important facts relating to antimicrobic agents generally, exclusive of antibiotics and chemotherapeutic drugs. Iodine, the mercurials, alcohols and other antiseptics are discussed first, followed by disinfectants and fungistats and fungicides. Of special interest to the food and pharmaceutical industries is the process of sterilization by ionizing radiations. This new development is explained in detail and is a method which should solve many existing problems in these fields. Preservatives and pasteurization are discussed separately with stress on the importance of both procedures in public health activities.

Wax-Encyclopedia, *by L. Ivanovsky, D.Sc., (Vind.), Chem. E., Volume one, 232 pp., (1954), Verlag fur chemische Industrie H. Ziolkowsky K.G., Augsburg, in German, linen bound* **DM 11.** The present volume is arranged in three parts, an addendum, elaborate indexes and a glossary. Part 1: Introduction to the Field of Waxes (basic information; definition and classification; production and usage; types of waxes. Part 2: Chemical Physics (the most important groups of waxes; chain compounds; structure of waxes; rigid systems; solid compounds and their mixtures; phase-rule of waxes; semi-solid masses; specific systems). Part 3: Science of Retention (semi-solid wax solvent-systems; science of retention, applied; evaporation residues; liquid systems).

The second volume, to be ready in about a year, will deal with the following items: Analytical and Technological Examination of Waxes; Individual Waxes, their Characteristics and Properties; Technological Fundamentals of Manufacture and Utilization of Waxes; Scientific and Technological Literature of Waxes.

Medical Uses of Cortisone, Including Hydrocortisone and Corticotropin, *Edited by Francis D. W. Lukens, M.D., Professor of Medicine, University of Pennsylvania School of Medicine, and Contributors, 534 pp., Blakiston Co., Inc., New York, (1954), cloth,* **$7.50**

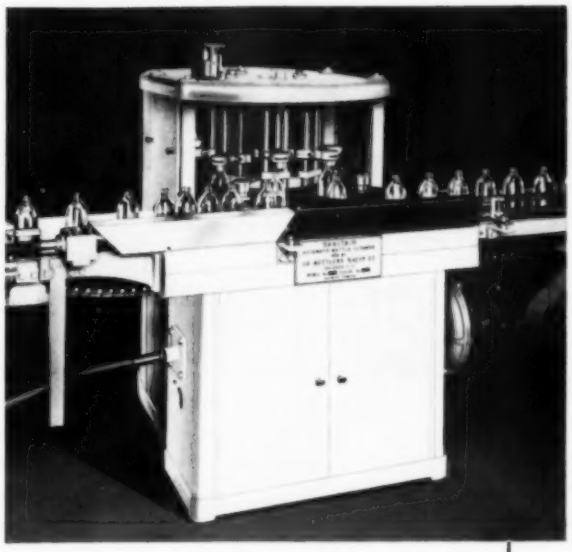
The judgment of a group of physicians with wide experience in the use of adrenal hormone therapy has been assembled in this one volume. The authors not only cite the ample literature in their several fields, but

present their own conclusions as to the place of these hormones in various diseases. Contents: Physiology of the Adrenal Cortex—Russell and Wilhelmi. Pharmacologic Aspects of Adrenocortical Hormones in Man and Their Effects in Adrenal Insufficiency—Thorn, Jenkins, Laidlaw, Goetz, Dingman, Arons, Streeten, and McCracken. Rheumatoid Arthritis and Other Rheumatic or Articular Diseases—Hench and Ward. Rheumatic Fever—Bunim. Other Collagen Diseases—Baehr and Levitt. Asthma and Rhinitis—Rose. Allergic Reactions to Therapeutic Agents—Harvey. Diseases Affecting the Skin-Pillsbury and Urbach. Granulomas:Pulmonary Granulomatoses, Pulmonary Fibrosis, Other Pulmonary Conditions—Richards and McClement. Infections—Keefer. Eye Diseases—Woods. Gastrointestinal Diseases—Machella. Blood Diseases and Malignancy—Bethell. Diseases of the Kidney—Leutscher, Jr., Neuropsychiatric Disorders—Cobb, Quarton, and Clark.

Enzymatic Concept of Anaphylaxis and Allergy, *and the Role of Eosinophils in Anaphylactic Reactions related to Hormonal Alterations, by Z. Z. Godlowski, M.D. (Cracow), Ph.D. (Edin.), M.R.S.C. (edin.), Research Fellow of the Carnegie Trust, Edinburgh, 120 pp., E. & S. Livingstone Ltd., Edinburgh, (1953), Cloth,* **$3.50.** This monograph by Dr. G. Godlowski is the result of many years' research work on, at first, apparently unrelated subjects—the effect of insulin shock on the suprarenal cortex; the occurrence of eosinophils and, later, their relation to antigens; and lastly, the interrelationships of suprarenal cortical hormones, eosinophils, and lymphocytes. The results of some of these investigations and new observations were put together in a thesis for the Ph.D. degree and are now presented in extended form to explain on an enzymatic basis the complexities of allergy and immunity.

Elements of Food Engineering, *Volume Two, by Milton E. Parker, Director and Professor, Food Engineering, Illinois Institute of Technology, with the collaboration of Ellery H. Harvey and the late E. S. Stateler, 360 pp., Illus., Reinhold Publishing Corp., New York, (1954), Cloth,* **$8.50.** Published in three volumes, this book treats the production, preparation, processing, handling and distribution of foods from the unit operation and unit process points of view. As such, it lays the foundation for the new profession of food engineering as distinguished from both chemical engineering and food technology. Volume 1 outlines the engineering factors involved in food processing.

Volumes 2 and 3 present an unified, coordinated discussion of unit operations grouped according to specific function. Volume 2 covers those operations involved in assembling and preparing raw materials, and discusses such aspects of raw material conversion as mixing, heating and refrigeration. Volume 3 continues the discussion of raw materials conversion such as evaporating, drying and dehydration, and covers fully the treatment of final products.



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PATENT THOUGHTS AND TRENDS

(Continued from page 357)

It would seem reasonable to conclude, on the basis of the Scherer case and Fox Reissue 23947 that the U. S. Patent Office has no policy objections to the issuance of claims relating to methods of treating human beings. If this proves to be the case it will no doubt come as pleasant news to the drug industry for the new policy promises protection to an area of drug research which is in need of patent protection. Reference is made to the field involving the finding of new uses for old materials.

Note on Tetracycline Patent Situation

The issuance of U. S. Patent 2699051 to Conover on January 11, 1955, was reported in last month's issue of This Journal.

The following very unusual notice appeared in the February 7, 1955, issue of the U. S. PATENT QUARTERLY:

> Two recent decisions by the Primary Examiner of Division 6 are of interest. They are dated October 11 and November 19, 1954, and were rendered in Interference No. 86861, Heinemann and Hooper v. Conover v. Minieri, Sokol, and Firman. In these decisions, the examiner on his own motion dissolved the interference as to all parties on the ground that the count was unpatentable over the prior art. Following these decisions, a patent, No. 2,699,051, issued to Conover on January 11, 1955. This is the tetracycline patent which has met with widespread attention in recent weeks.

RECENT PATENTS

2,686,148—**Armour—Recovery of Proteolytic Enzymes from Pancreas Gland Residues Subsequent to Insulin Removal.**

2,686,181—**Glidden Co.—16, 17-Oxido-5-Pregnenes.**

2,686,187,9—**Sterling Drug — 21 - Chloropregnan - 17α-01-3, 11, 20-Triones.**

2,686,188—**Sterling Drug — 21 - Chloropregnane - 11, 20-Dione 3α, 17α-Diol.**

2,686,708—**Armour—Acid Treatment of Sutures.**

2,686,723,4—**Universal Oil Products — Stabilization of Edible Materials.**

2,686,749—**Commercial Solvents — Purifying Neomycin.**

2,686,750—**Abbott Labs.—Vitamin B_{12a} Purification.**

2,686,751—**Eastman Kodak—Vitamin A Stabilization.**

2,686,761—**Proctor & Gamble—Detergent Product Having Milled Soap Properties.**

2,686,778—**Am. Sugar Refining Co.—Treatment of Dextrans with Alkaline Earth Metal Hydroxide to Reduce Viscosity and Molecular Weight.**

2,686,780—**Upjohn — Hydrolysis of 3, 20-Diacyl-**

oxy-9(11), 17(20)-Dioxido-5, 7-Pregnadiene Adducts.

2,686,781—Burroughs Wellcome — Pyrido(3,2-d) Pyrimidines.

2,686,783—Hoffmann-La Roche—Quinolyl Dialkyl Phosphates.

2,686,784—Hoffmann-La Roche—Piperidines.

2,686,785—Burroughs Wellcome—Saturated Dithienyl Propyl Amines.

2,686,786—Mathieson — N - Hydroxy - 2 - Pyridinethiones.

2,686,787—Parke, Davis—Oxazolines Preparation.

2,686,788—Parke, Davis—Prepn. of Nitro Phenyl Amino Diols.

2,686,789—G. D. Searle—Introducing a Malonyl Radical in delta-position to a Carbonyl Radical in Steroids.

2,686,790—Univ. of Penn.—Tritylated Hydroxyetiocholanic Acids.

2,686,791—Upjohn — 6 - Beta - Hydroxy - 17 - α - Methyl Testosterones.

2,686,792—Upjohn—11-α-Hydroxy Testosterones.

2,686,793—Upjohn—Reduction of 11-Ketoprogesterone to 3-β-Hydroxyallopregnane-11, 20-Dione.

2,686,800—Reheis Co.—Basic Aluminum Para-Amino Salicylate.

2,686,802—Parke, Davis—Dichloracetimino Thioethers.

2,686,806—Ciba—1(3)-Alkoxyphenyl 3(1)-Alkylphenyl-2-Thioureas.

2,686,808—Merck — Mannich Reaction Compounds.

2,686,812—Gen. Aniline — 2,2',4 - Trihydroxy - 4' - Alkoxybenzophenones. Sunscreening Agents.

2,686,816—Geigy—Aryl Trichlorethanols.

2,688,022—G. D. Searle—1 - Aminoalkyl - 3 - Carbolines.

2,688,023—E. I. duPont — 5 - (3 - Cyanopropyl) Hydantoin.

2,688,025—Mathieson—Basic Derivatives of Substituted Cycloalkanecarboxylic Acids.

2,688,026—G. D. Searle—Basically Substituted Piperonylamides.

2,688,030—G. D. Searle—14-Hydroxyequilenin.

2,688,033—J. B. Niederl—Quaternary Octylaniline.

2,688,036—Ak. Ferrosan (Sweden)—Biologically-Active Condensation Products of Trihydroxy Benzoic Acid and Formaldehyde.

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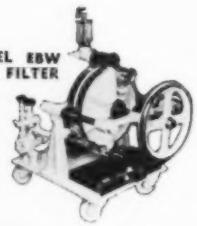

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2,688,618—Bristol Labs.—Basic Caffeine Derivatives.

2,688,624—Upjohn—Tribromosteroids.

2,688,625—Eastman Kodak — Alkylidenebis (4 - Alkoxy-6-Vinyl-Phenols), Stabilizers for fats and oils.

2,688,638,9—Givaudan Corp.—N - (β - Phenoxyethyl) Haloethylamines and Ethanolamines.

2,689,204—W. J. Nickerson — Culture Medium Containing Bismuthyl Polyhydroxy Polysulfite.

2,689,227—Rohm & Haas — Penicillin Salts of Anion Exchange Resins.

2,689,248—Sterling Drug—Tertiary - Aminoalkyl 4-Amino-2-Alkoxybenzoates.

2,689,249—Rohm & Haas — Dialkyl - 2 - Iminoimidazolidines.

2,689,260—Ortho Pharmaceutical Corp — Dehydration of Vitamin A Intermediate.

2,689,814—Miles Labs.—Anesthetic and Fungicidal Chlorothymol Composition.

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2,689,850—Dar-Syn Labs.—Producing Soluble Quinoline Sulfonic Acids.

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2,689,852—Hoffmann-La Roche—1 - Isonicotinyl - 2-Acyl Hydrazines.

2,689,853—Schering A. G. — 1, 2 - Disubstituted Benzimide-Azoles.

2,689,854—Chas. Pfizer—Acetopyrrothine.

2,689,856—Ciba — $\Delta^{8,14}$-17-Keto-10, 13-Dimethyl-Cyclopentanopolyhydrophenanthrenes.

2,689,866—Abbott Labs.—a-Phenyl Propyl Allophanate.

2,689,869—Monsanto — 2 - Phenyl - Ethyl - 2 - (Di-and Polychlorophenoxy) Ethyl Sulfides.

2,690,441—G. D. Searle—3-Carbolines.

2,690,442—G. D. Searle—Basically substituted Esters of α, β, β-Triarylacrylic Acids.

2,690,453—Lever Bros.—Preparation of Stilbenes.

2,691,011—Refining, Unincorporated—Sterol Glycosides and Inositol from Vegetable Oil Phosphatidic Material.

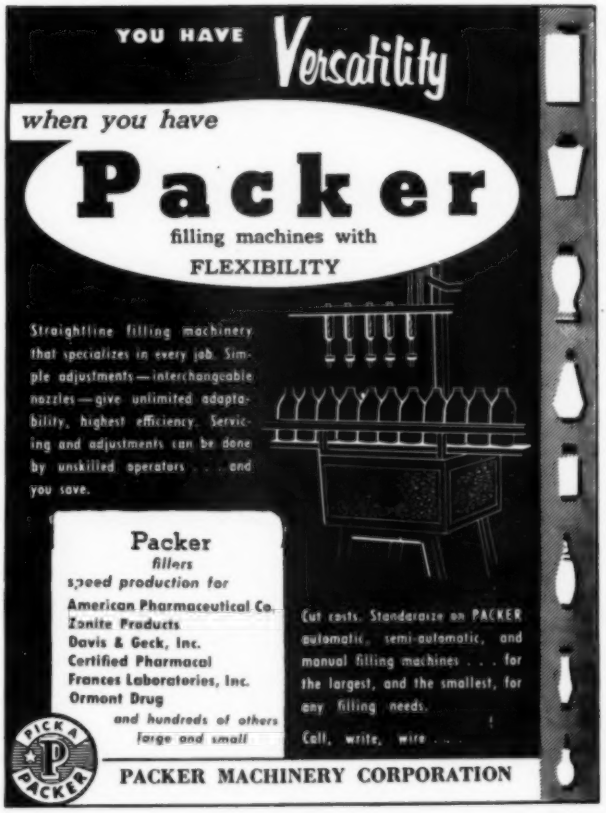
2,691,012—Ohio State Univ. Research Foundation—Synthesis of Glucothiofuranosides.

2,691,013,4—Upjohn—Bromosteroids and Oxidosteroids.

2,691,017—G. D. Searle—Bis-Aminoalkyl Carbonates.

2,691,023,4—Schenley — Dihydropyrrols - (3.2 - c) Quinolines.

2,691,025—Sterling Drug—N - (Tertiary - Aminoalkyl)-2, 4-Disubstituted-Benzamides.
2,691,028—G. D. Searle—Estradienes.
2,691,029—Upjohn—Steroid Oxidation.
2,691,030—Upjohn—11a - Hydroxy - 6 - Dihydroprogesterone.
2,691,031—Upjohn—3 - Keto - Bisnor - 4 - Cholen - 11a, 22-Diol and Esters.
2,691,039,44—Schenley—Stilbene-a-Ketols.
2,691,041—Sterling Drug—N - (Tertiary - Aminoalkyl)-2-Substituted-4-Nitrobenzamides.
2,691,617—S. Hermann — Choline Gluconate Medicament.
2,691,618—Chas. Pfizer—Anisomycin.
2,691,619—Chas. Pfizer — Fat - Soluble Vitamin - Containing Products.
2,691,620—Amer. Cyanamid—Recovery of Streptokinase and Streptodornase.
2,691,651—Merck—Prepn. of Alkali and Alkaline Earth Metal Penicillinates.
2,691,654,5,7—Burroughs Wellcome — Amino Heterocycles.
2,691,656—Sterling Drug—1 - Methyl - 3 - Piperidylmethyl 2-Cycloalkyl-4-Methylpentanoates.
2,691,658—Ciba—2 - (a - Phenylaminoethyl) - Imidazoline.
2,691,662—International Hormones, Inc.—Steroids.
2,691,675—Merck—Prepn. of Neomycin A from Neomycin B.
2,691,676—Sterling Drug—N, N - di - (n - Octyl) - N-Methyl-N-(3, 4-Dichlorobenzyl) Ammonium Chloride.
2,691,677—Burroughs Wellcome — Anticholinesterases.
2,691,678—Sterling Drug—2, 2 - Diphenyl - 4 - Di - Lower-Alkylaminoalkanals.
2,691,679—Abbott Labs.—B - o - Phenylphenoxyethyl B'-N-Methylbenzylaminoethyl ether.
2,691,680—G. A. Breon & Co.—N - Methyl - 1 - (3 - Hydroxyphenyl)-2-Phenylethylamines.
2,700,636—Johnson & Johnson — Gum - Impregnated Dental Floss.
2,700,666—Am. Cyanamid—Prepn. of Cortisone Derivatives.
2,700,667—Bristol Labs. — 8 - (2 - Benzyl - 4 - Chlorophenoxy) Caffeine.
2,700,674—Les Labs. Francais—Prepn. of a Methyl-Ketone Related to Estrone.
2,700,680—Am. Home Products — Substituted Glycinamides.
2,701,163—Pharma-Craft Corp.—Metering Aerosol Bottle.
2,701,212—E. J. Brennan—Germicidal Deodorizing Dental Adhesive.
2,701,266—Western Reserve Univ.—Agent Effective Against Whooping Cough.
2,701,227—Am. Cyanamid—Enzyme Production of Mixtures of Streptokinase and Streptodornase.
2,701,247—Sterling Drug—Mono- and Bis-(Ter-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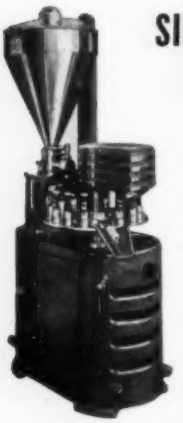

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tiary Aminoalkylamino)-p-Benzoquinones.

2,701,249—Merck—Prepn. of 2-Mercapto-5, 6-Dimethylbenzimidazole.

2,701,250-51—Iowa State College R. F.—Prepn. of Indole-3-Acetic Acids.

2,701,256—R. Kuhn et al—Polyacetylated Derivatives of Cysteamine.

2,701,781—M. L. de Guevara—Aqueous Chlorine Dioxide Antiseptic Compositions.

2,701,795—Upjohn—Streptomycin Extraction.

2,701,796—Rheinpreussen (German) — Penicillin Salts of Amino Salicylates.

2,701,797—McNeil Labs — 1 (3 - Indolylmethyl) - Piperidine-N, N-Dialkylcarboxamidis.

2,701,798—Am. Cyanamid — 3 - Hydroxy - Piperidine-2-Acetic Acid Latones.

2,701,805-6—Upjohn — 3 - Keto - Bisnor - Cholen - 22 (or Cholan-22)-Als.

2,701,807—Research Corp.—Steroid Aldehydes.

2,701,808—Upjohn — Prepn. of 3α - Hydroxypregnane-11, 20-Dione.

2,701,812—Dainippon (Japan) — Diarylarsenious Acid Derivatives.

2,701,816—Ruhrchemie (Germany) — Formylated Terpenes.

2,702,262—Chas. Pfizer—Gelled Vitamin Composition.

2,702,264—Hoffmann-La Roche—Enteric Coated Tablet.

2,702,265—Hiram Walker & Sons—Production of Riboflavin by Ashbya Gossypii.

2,702,291—Syntex (Mexico)—Prepn. of 11φ-Hydroxy Steroids.

2,702,292—Norwich Pharmacal — N - (5 - Nitro - 2 - Furfurylidene)-3-Amino-3, 4, 5, 6-Tetrahydro-1, 3-Oxazine-2-One.

2,702,293—Ciba—Thioketopiperidines.

2,702,297—Syntex (Mexico) — Cyclopentanophenanthrenes.

Court Cases

2,628,184—R. R. Widmann, Composition of matter to decrease circulation of flood and lymph in vascular and allergic disorders, Int. Minerals & Chem. Associated Labs., filed Nov. 19, 1954 (Los Angeles).

AMIDES IN COSMETICS

(Continued from page 325)

as setting and its feel, after shampooing. This may be due to a substantive activity it possesses due to the presence of the unsaturated amidic group. Its presence in a detergent solution also markedly lowers the cloud point of the preparation—a rather peculiar thing because by itself it is insoluble in water.

Another series possible and some members of this category are now being marketed are the amide esters.

These substances also have relatively high melting points though not as high as the corresponding amide alcohols. Some members of this grouping are being used as shampoo opacifiers, but could conceivably be of value where the amidic group could act as a solvent.

The dialkanolamides as such have not been explained as fully as the other representatives already discussed, but there has been a great deal of work done with them recently and there is no doubt that they will become as important as the alkanolamides. They should prove to have extremely interesting properties somewhere between the monoalkanolamides and the well-known condensates dependent on an excess of the dialkanolamine.

The discussion has been limited to a relatively small number of compounds. Since the commercial advent of the isopropanolamines these may be increased by as large a number with additional properties not found in those discussed. The possibilities of producing a wider range of amidic compounds therefore still is great and certainly the inclusion of a side chain (as would be the case with the isopropanolamines) would enhance the solubility of these compounds in the lipoid phase and perhaps cause them to have better over-all additive boosting and detergent effects. The new fields represented by these compounds is far from being static and their investigation will probably provide some interesting innovations.

In addition to the alkanolamines amides may also be prepared from a large number of other fatty acid derivatives now available. Fatty amines are now available as well as the amides without any other grouping attached to the nitrogen. Amides therefore are easily made by heating one of these alkylamines with a fatty acid—where the molecule would contain two alkyl groups. Substances of this type would have relatively higher melting points and could possibly be used in some cosmetic preparations.

STEREOISOMERS of CINNAMIC ALDEHYDE and BEZYLIDENE ACETONE

(Continued from page 333)

trans-cinnamic aldehyde	cis-cinnamic aldehyde
b.p.$_{0,1}$ 80°	b.p.$_{0,1}$ 67-69°
d_4^{20} = 1,0500; n_D^{20} = 1,6195	d_4^{20} = 1.0436; n_D^{20} = 1,5937
RM_D found 44,18;**	RM_D found 42,95;**
EM_D = +4,48	EM_D = +3,25
λ_{max} 287 m μ, log e = 4,35	λ_{max} 284 m μ, log e = 4,10
abs. term. 220 m μ, log e = 4,06	abs. term. 220 m μ, log e = 3,93
Semicarbazone m.p. 210° (Decomp.)	Semicarbazone m.p. 196°
Phenylsemic. 177°	Phenylsemic. 187°

**RM_D calculated for C_9H_7O F_1 39,70

As to the olfactory properties—which are interesting to us above all—there were no notable differences between the cis-compounds and the trans-compounds.

These cis-carbonyl compounds, very sensitive to acids, are resistant to contact with alkalies, at least as far as benzylidene acetone is concerned. As to the thermal behavior, there is rather marked instability:

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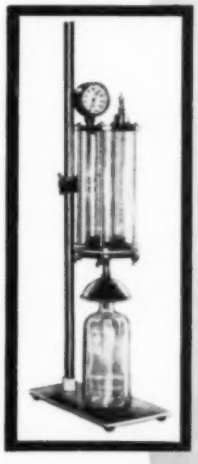

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THE SEARCH FOR NEW DRUGS

(Continued from page 321)

as yet brought them to light. It is for this reason that a number of companies are devoting a large part of their research efforts to this group of products. After all, the steroid hormones are fully believed to be one of the great classes of remedial agents of the future of medicine, and all leading companies are trying to discover one or more of the products that will fulfill this belief.

The search for botanicals containing drugs which produce entirely new effects is a continuing effort. And while the results are not very prolific, many of the discoveries made are of such great significance that the search can never be abandoned. One of the greatest discoveries of all time is that of the value of rauwolfia and its alkaloid, reserpine. This product has not only given the medical profession an outstanding drug for the control of high blood pressure, but it has also given them the first drug to demonstrate that therapy of mental diseases is possible through the use of drug products.

Tackling this research by starting with a disease, one finds in the case of tuberculosis—an infective disease—that both synthetic chemicals and antibiotics can bring startling results. And if we are to believe from the early reports that the new TB antibiotic, cyclosorine, will be at least as important as other products now used in this disease, then the score stands two to two between the chemicals and the antibiotics. Streptomycin and cyclosorine are the two antibiotics, and PAS and isoniazid are the two chemicals. But there are still problems to be solved with regard to tuberculosis, and one of the main problems is the fact that the tuberculosis germs become sealed up inside and are not subject to attack by any of the drug products thus far discovered.

Another factor in tackling research by starting with a disease, is the fact that certain infectious diseases give no promise of reacting to any bactericide, and therefore must be tackled from the biological angle. This has been the case with poliomyelitis. Certainly there has been no indication that polio could be controlled by means of any of the antibiotics or other products which have been discovered in recent years. Being a virus disease, this was not particularly surprising. However, certain of the virus diseases have responded to treatment with antibiotics. But in the case of polio the object to prevent attacks of the disease, if possible, so that the ravages of an attack would be avoided completely. For these reasons, the search for drugs to control polio has been confined exclusively to biologicals with the possibility of control of the disease confidently anticipated within a comparatively short space of time.

The discovery of a drug which is efficacious for a rather minor condition sometimes results in the same drug finding a much wider or much more important application. Thus the drug Thorazine, an antihistaminic type of chemical compound discovered in France, has gone far beyond its original application for control of nausea of pregnancy and of various disease conditions. It is finding a very intensive use in control of mental disease along with reserpine. Thus this drug has become of prime importance in that it is one of only two chemicals—both from entirely different sources—that are proving that control of mental diseases through the use of drugs is entirely possible.

Now that treatment of mental diseases by the use of drugs has been established, we can anticipate the search for, and the discovery of, numerous additional products for similar application. No doubt, many products which have been in existence for some time, but which have never been tested for possible application to mental diseases, will be tested to find out if they do possess any efficacy in this direction. After all, the pharmaceutical industry now has before it a practically virgin field. Not until recently was it believed, or at least proven, that it was possible to produce therapeutic agents that would bring certain mental diseases under control. And when the extent of mental disorders in this country is considered, as well as the great public health problem and family problem that it represents, it would not be surprising if this had already become one of the major research problems for quite a number of pharmaceutical manufacturers.

Thus the research staffs of the pharmceutical manufacturers are subject to many influences. They are subject to the capabilities of their scientists in various phases of drug research. Some manufacturers have research staffs which are most proficient in one or two fields and less proficient in others. It is for this reason that most of the new products of certain types come out of particular pharmaceutical houses. And generally when one of these houses announces a new product, one or more other manufacturers are not far behind in coming on the market with the same or a similar product. It will be noted that certain pharmaceutical manufacturers give practically all their attention to the type of products in which their research staff is particularly strong, leaving the other types of drugs to other manufacturers. However, many of these manufacturers will take on a product in which their research is not outstanding if the product is important enough, and if one of the prime manufacturers in the product will supply it in bulk to other manufacturers.

The many avenues of approach in pharmaceutical research, and the large number of highly skilled scientists engaged in this research both here and abroad, make the future of this industry particularly bright. The things that have been accomplished by newly discovered drugs in the past two decades, together with the comparatively large number of conditions and

serious diseases which have not as yet been brought under control, indicate clearly that the future is unlimited. It must be remembered that we are still a long way from eliminating surgery as a cure except in accidents. For sooner or later, it should be possible through the use of drugs, to clear up most of the conditions for which surgeons operate. Certainly an honest surgeon will admit that he does not know the answer to cancer, but is forced to operate and remove parts of the body merely because of ignorance of any other method of treatment.

THE SUNTAN INDUSTRY

(Continued from page 336)

by the profit factor or requested by the sometimes misguided customer. Among such preparations are carron oil, olive oil, baking soda, vinegar, brushless shaving cream, cold cream, vanishing cream, alcohol, petroleum jelly and many more. Also nearly every pharmacist promotes his own formula, or has a formula prepared for him under his label, some of which are reasonably efficient. But little effort is required to see that the combined sales of all these remedies, which have escaped official count, will in themselves add up to millions of units. If each one of the 52,000 drug stores in America sold only 200 packages of any or all of the mentioned preparations, the total would be about 10 million units. The consolidation of both estimates, 26 million and 10 million, will yield a grand total of 36 million units of burn remedies that were purchased by the American public during a single summer. We are confronted with a prodigious and incredible incidence of solar burns. Such wholesale and repeated damage to a vital body organ, the skin, warrants a less frivolous and a more serious attitude than heretofore has been accorded same, by both the medical profession and the laity.

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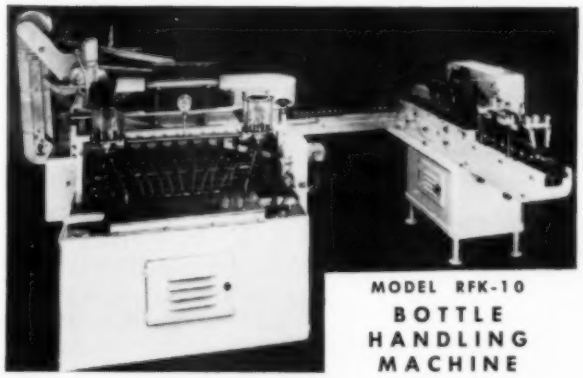

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gest ways and means of setting into motion the axiom, "an ounce of prevention is worth a pound of cure."

Sunburn Syndrome

A brief review of the sunburn syndrome will assist to illuminate the cosmetic, dermatologic and economic sequelae. Mild burns provoke a hot, drawn, uncomfortable feeling in the skin, which is now dry and erythematous. The pain level is disconcerting but not intolerable. These symptoms will usually disappear in 24 to 36 hours, providing the victim stays out of the sun. The skin, after the described minor irritation, is appreciably more sensitive to ultra-violet radiation and further immediate irradiation may result in a really serious burn. Severe actinic injuries present a vastly different picture, characterized by a very high pain level of an indescribable, insufferable nature. Body movement or contact with clothing is unbearable. The skin is parched and of an angry red hue. Almost invariably there will be attendant such symptoms as shock, chills, fever, nausea, tachycardia and an over-all feeling of utter misery. Little or no improvement will take place for at least 36 hours, frequently longer, depending upon the physical condition of the patient and the severity of the burn. Pain should now begin to subside but coincidently a new and alarming symptom may appear—a swelling of the ankles, legs or face. A credible theory for this edema is the liberation of the vaso-dilator, histamine or histamine like substance, which is synthesized as a degradation product of the altered proteins of the epidermis. Severe pruritis or itching may also add to the victim's woes. Large watery blisters may form offering a highway for the invasion of infectious micro-organisms, and, as a concluding gesture, desquamation or peeling will in many cases occur. Fortunately in rare instances the depicted syndrome has required hospitalization for treatment.

Price of Solar Burns—Cosmetic Impairment, Dermatologic Deterioration, Economic Waste

We have delineated in some detail the actinic injury common known as sunburn. Full recovery does not close the matter, at least not as far as nature is concerned. Severe repeated burns may pave the way for dermatologic pathology—deep seated and chronologically distant, and therefore seemingly unrelated to the prime-mover. Of immediate importance to the layman is the decline in cosmetic appeal. After many years of observation and study directly on various beaches, the writer has concluded that a serious sequel of severe sunburn is the failure of the skin to tan normally, if at all, throughout the summer in which the injury was sustained. Furthermore, as a distinct potential, not only is pigmentation inhibited or totally non-existent during the particular season in question, but such a condition may persist for many summers thereafter. A definite and tangible destruction or deterioration of the pigmentogenic system has obviously been engendered, and this may require as long as three or more years for full regeneration. The writer is aware of instances where the capacity to synthesize and deposit melanin is permanently destroyed.

That everyone, male and female, young and old, is desirous of acquiring a coat of tan needs no comment. This is especially true of the male-conscious female. A deep tan can and does, physiologically speaking, cover a multitude of sins. A sallow, lifeless, unattractive complexion, after pigmentation and whatever processes that are catalyzed simultaneously, is transformed into a glowing, healthful skin radiating an irresistible charm. A comparable beauty treatment cannot be obtained in any bottle, tube or jar at any price. In both sexes a tan casts a radiant glow of health and vitality and by virtue of such improved appearance, provides a psychologic "lift." Failure to tan, or a poor tan through impaired pigmentogenic function, is a deplorable disappointment to the average sunbather. The outraged skin not only has succumbed to the described degeneration in pigmentogenic capacity, but concomitantly will manifest other forms of pathology such as large, ugly, sinister looking freckles in the burned areas. Freckles or spots of hyperpigmentation are said to be a desperate effort by the skin to protect vital nerve endings from excess radiant energy. That they are a cosmetic liability needs no comment.

A severe ultra-violet injury after so-called recovery, often leaves an integument that is far from normal. The skin is mottled, pink or light red, punctuated with newly formed obnoxious freckles and there is no semblance of tan present. It is difficult to describe, but the skin looks generally unhealthy and so it is. Tolerance to sunlight is now but a fraction of that before the burn. If more than momentary exposures are permitted, raw, red, non-healing patches of ravaged skin will materialize on the forehead, nose, shoulders and other prominent areas. Decreased ultra-violet resistance and repeated trauma with same forces these wounds to become chronic. The tissue herein cannot and will not regenerate until completely protected from solar radiation. Such measures are unpopular, as is evident on any beach about mid-summer. Ultra-violet irritation, even if only of mild intensity, if repeated year after year, will earlier or later, prove etiologic in a degenerative syndrome characterized by the skin becoming scaly, inelastic, wrinkled, thickened, coarse, unattractive and old-looking. Excessive insulation, notwithstanding a formidable tan and the absence of any dermatologic debasement, can and does occasionally give rise to an embarrassing condition known as vitiligo or large depigmented patches of skin surrounded by normal tan. Recovery from this evil-looking pathology, evidence of deep and subtle injury, may necessitate years of abstinence from any solar irradiation. Unlimited quantities of strong sunlight, especially in the tropics and semi-tropics, impinging upon a skin that seems to be successfully resisting same, can and does precipitate a predisposition towards eczema, acne, urticaria, etc. The white man is simply not geared for limitless hours of strong solar radiation. Those in-

indulging in such heroics, and many do, may feel perfectly safe at the time, but at some future date, an important body organ, the skin, will exact a full measure of revenge. If the public were thoroughly familiarized with the foregoing, a marked reduction in sunburn would soon be apparent.

Price of Solar Burns— Dermatologic Deterioration

That chronic ultra-violet trauma can be pathogenic in a host of skin diseases is a well-known maxim in dermatologic circles. Unfortunately such information has not been diffused throughout the public who would profit most from it. Even the general practitioner is not especially familiar with this narrow segment of dermatology. Kest-Slatkin[32] have most efficiently classified diseases related to light sensitivity, which, with thanks to the authors, we present in its entirety. While visible and infra-red radiations are not completely innocent, the ultra-violet wave-lengths are responsible for the majority of the listed pathologies.

TABLE 6

Schematic Classification of Diseases Related to Light Sensitivity

I. Occurring in Apparently Normal Skin
- A. Solar Erythema
  - Erythema with or without edema
  - Erythema multiforme type
- B. Chronic Polymorphic Light Dermatitis
  - Eczema type
  - Prurigo Type
- C. Solar Urticaria Produced by
  - Ultraviolet
  - Visible light
  - Infra red light
- D. Photodynamic Dermatosis
  - Photochemical
  - Phytophotodermatosis
  - Coal Tar Melanosis

II. Occurring in Skin that is Presumably Abnormal
- Porphyria and Porphyinuria
- Hydroa Vacciniforme
- Epidermolysis Bullosa
- Xeroderma Pigmentosum
- Light Sensitivity Associated with Infection
- Light Sensitivity Associated with Endocrine Disturbance

III. Occurring as Koener Phenomenon
- Pellagra and Pellaggroid Eruptions
- Lupus Erythmatosus
- Keratosis Follicularis (Darier's Disease)
- Pityriasis Rubra Pilaris
- Papular Urticaria

IV. Occurring in Skin after Prolonged Exposure to Sunlight
- Chronic Sunburn with or without Keratoses
- Degeneration of Collagen and Elastic Tissue
- Epithelioma

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As was previously affirmed and is now brought into sharper focus by Table 6, prolonged exposure to excess sunlight will cause the skin to become inelastic, wrinkled, thickened, erythematous and prematurely aged. Furthermore, chronic and excessive insulation is unquestionably instrumental in the production of many lesions which may be pre-cancerous, and which, with or without sustained actinic irritation may eventuate into a malignant process. This, then, is the extreme cutaneous penalty and should constitute an overwhelming incentive to avoid excessive ultra-violet irritation.

Regional differentials in the incidence of skin cancer almost irrefutably identifies intemperate solar irradiation as the predominant etiologic factor in this disease. Table 7 offers a graphic illustration of such effect in action.

TABLE 7

Incidence Rates Skin Cancer per 100,000

		Age 25-34	All Ages	Combined Sexes
South	Male	29.6	116.1	
	Female	21.7	70.5	186.9
North	Male	3.7	23.1	
	Female	3.2	18.2	41.3
West	Male	3.1	48.5	
	Female	8.2	34.2	82.7

The states with the greatest annual hours of sunshine show the highest skin cancer rate. The regions with least sunshine, the north, report an incidence of dermatologic neoplastic disease less than half that of the south. The western area, with a solar flux more or less midway between north and south, manifests a prevalence of skin malignancy intermediate between the highest and the lowest.

McDowell[34] offers supplementary data in respect to Table 7, as follows: incidence of skin and lip cancer, Atlanta, 157 per 100,000; New Orleans, 129; Detroit, 37; Pittsburgh, 25; Chicago, 24. Again, the percentage of possible sunshine and the rate of skin cancer are in direct proportion; the northern cities with low incidences and the southern cities with a far greater frequency, in this study, practically 500 per cent greater. In view of the foregoing, those who wish to doubt the carcinogenic capacity of chronic ultra-violet trauma may do so but the evidence indicates almost conclusive guilt. Signs of solar involvement in skin changes that are more or less observed by everyone may be found among fishermen, sailors, farmers and other outdoor workers. Frequently after the fourth decade, sometimes earlier or later, the integument displays alterations of a pathologic nature such as warty growths, thickening of the skin, permanent erythema, exaggerated freckles and senility.

The bio-chemical basis for dermatologic pathology induced by chronic and excessive insulation may be found in the desperate and radical efforts on the part of the defense mechanisms of the skin to protect itself against damaging radiant energy, primarily that of erythemogenic wave-lengths. These defense processes consist principally of proliferation, cornification, pigmentation and changes in skin cell proteins.[35] These functions when subjected to inordinate stimulation, may eventuate into some sort of degenerative stage, depending upon time, intensity, and character of radiation. Points of greatest stimulation and consequently greatest cell response, are first to succumb to precancerous changes. With provocation, or even on the impetus of first cellular alterations, such momentum can proceed to a malignant process. Cancer development is not only the potential sequel of an initial precancerous injury, it can also be the result of continued trauma—such trauma may be either mechanical, chemical, or as with sunlight, photo-biologic. Fortunately, while the entire gamut of light-induced skin disease is distressing to the victim, they are not usually fatal, with the exception of certain types of neoplasms. That they may trigger other disturbances even less desirable is a distinct possibility. Most regrettable is the fact that a major portion of light dermatoses could be prevented by a more respectful attitude towards the solar spectrum.

Neither the physician nor the laity has made any efforts to implement known prophylactic measures. In view of the mass, unparalleled indulgence in solar irradiation, ultra-violet trauma and its train of repercussions merit increased recognition from the medical profession, the layman and the suntan industry.

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(To be Concluded)

DENTAL CARIES AND DENTIFRICES

(Continued from page 327)

two laboratory methods which will be considered. The first is generally called the "saliva-glucose" procedure. It has been employed by several investigators[1,2,3,4,5] and there is a large amount of data available concerning its behavior. The test is usually performed with saliva obtained from persons having active dental caries. Approximately two to 10 per cent sugar and a variety of concentrations of the agent to be tested are added to aliquots of the saliva. The pH, titratable acidity, or solution of calcium or phosphate from enamel or hydroxyapatite is recorded after an incubation period of about four hours. The end point may be the concentration of chemical which just nullifies the effect of incubation with sugar.

The second approach is the one employed by the author[6], and for which data is available on nearly two thousand chemicals. It has been called the "salivary sediment" method. Its novelty comes from the use of a definite thickness of film prepared from salivary sedi-

ment, and from operation under conditions that permit control of variables and automatic recording of pH. Saliva from selected subjects is pooled and centrifuged, and a known quantity of the sediment is shaped over the active surface of a glass electrode with the aid of an open-meshed nylon thimble. The electrode and sediment is placed in contact with a carbonate buffer containing glucose until the sediment pH becomes constant. The pH differential between the sediment and solution at this time is a measure of sediment activity. The sediment is next placed in a solution containing the test chemical and allowed to remain for twenty minutes. Then the sediment is removed, rinsed and returned to control buffer until a steady state is again reached. The percentage reduction of pH differential caused by the treatment indicates the degree of inhibition.

A comparison of laboratory predictions with clinical results for eleven different substances are given in Table I, page 327. The compounds tested are listed in the first column in alphabetical order. The concentration at which they were tested in the clinical or animal test is given in the second column. The degree of inhibition is indicated by plus marks. Each plus mark represents twenty per cent inhibition, so that zero indicates ten per cent or less, one plus indicates eleven to thirty per cent effect, and so forth. If reports by different investigators are available, their findings are indicated on separate lines. References for each agent are presented in the last column.

The next column shows results from animal investigations. "B" in the right of the column shows that the medicament was brushed on the teeth of the animals; otherwise the chemical was added to the diet or drinking water. The next column gives the findings with the saliva-glucose test as obtained from the literature and the next to last column gives data obtained recently with salivary sediment in our laboratory for twenty minute contact with the ingredients named. In compiling this information we have made the assumption that dentifrice is diluted with an equal volume of saliva during brushing of the teeth, so that the actual concentration in the mouth during a clinical test would be half as great as was originally present in the dentifrice. Hence the laboratory findings are based on concentrations that are half as great as those reported for dentifrice.

There are four clinical studies available for ammonium phosphate. In all instances either three or twelve per cent urea was also present in the dentifrice, but since the combination had only slight effect in all instances, we can conclude that ammonium phosphate would not be very effective alone. There is the possibility that urea has an adverse effect on the action of the ammonium salt, but this is highly unlikely. There is one animal toothbrushing test which was negative. In contrast with this ammonium phosphate is strongly inhibitory in the glucose-saliva test, but the findings with salivary sediment are negative.

Bicarbonate of soda was tested by one investigator with negative findings and the sediment results are

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negative. No other information is available at this concentration. Copper chlorophyllin has been tried on animals but not with human subjects so far as the author is aware. One investigator reported no effect on caries of white rats and cotton rats, and the other obtained inhibition with hamsters. The saliva-glucose tests are positive and the salivary sediment results are negative.

Copper sulfate has been found to be active at three concentration levels in animal experiments in which it was given in the drinking water; with this substance the saliva-glucose tests are positive and the sediment results also show considerable inhibition. Sodium fluoride has been found to be inactive by clinical studies by two investigators. Animal feeding tests are positive, probably because the fluoride had better opportunity for systemic action. The saliva-glucose results are positive and the sediment results are negative. Glyceraldehyde appeared to be promising some years ago, judging from its behavior with the saliva test, but a negative test served to quench some of the enthusiasm. We found no activity from the substance when it was tried at two per cent by the sediment method. We have adopted the convention that animal tests should be ignored when clinical results are available, and that all clinical tests should be averaged. Four of the first six compounds are negative by *in vivo* test, one is positive and one is questionable. The saliva test predicts that all should be effective. The sediment method indicates slight activity for copper chlorophyllin which may be attributable to its copper content since copper sulfate is much more inhibitory. This is in agreement with the animal findings.

The next group of five compounds contains three that have been found to be effective by animal or clinical studies. Sodium iodoacetate has not been tested clinically, possibly because its toxicity may be too great for human usage. It appears to be promising in other respects. We have found that the iodoacetate is the most active monohalogen derivative of acetic acid. The bromoacetate is inhibitory at ten milligrams per cent (0.01 per cent) but not at one mg. per cent. Chloroacetate is effective at one hundred mg. per cent, but not at ten mg. per cent, and fluoroacetate is not even active at one hundred mg. per cent. N-lauroyl sarcosinate is inhibitory according to the three criteria by which it has been evaluated and one of the criteria was a full scale clinical study.

Penicillin dentifrice presented a problem to us from the moment we first tried the substance. Sediment tests are almost negative. The saliva tests are positive, and dental caries is consistently reduced when hamsters' teeth are brushed. On the other hand the clinical studies do not check well, hence there is uncertainty as to whether penicillin has no inhibitory effect or a "3 plus" action. The average of all clinical tests would be "one plus" effect, which is similar to the finding from salivary sediment.

At one time urea dentifrices appeared promising but when the clinical and animal tests were completed they were found to be essentially negative. The saliva test is positive and the sediment test is negative. A similar situation holds for Vitamin K, except that there have been no dentifrice tests with this substance. In summary on this portion of the table, we find that the saliva test is uniformly optimistic, whereas the predictions from the sediment test are more realistic.

The comparison of the two laboratory methods shows great differences in their reliability as indicators of animal or clinical results. The saliva-glucose method gives positive results with each of the eleven substances, sometimes when the concentration of the agent was one-tenth or one-hundredth of that which was used for the *in vivo* testing. The salivary sediment method gives positive results with only three of the eleven. There are eight substances with zero or one plus inhibitory effect according to *in vivo* tests, and three that are more active. The saliva-glucose test gives the correct qualitative prediction in less than thirty per cent of the cases, and even then its predictions are too encouraging, which is at least equivalent to seventy per cent false positive results. The sediment method predicts the general clinical or animal finding each time, and disagrees with clinical results by one plus value or less.

The reason for the better performance of the sediment method can probably be attributed to its closer approximation of mouth conditions. Test substances must diffuse through a semisolid mass of organic substance that resembles the situation that must exist when an agent in dentifrice is called upon to affect dental plaques between teeth. The action of the substances must be retained for one to two hours while the sediment is being gently rinsed by the control solution. Other investigators have employed a separate absorption test to check whether a chemical is resistant to rinsing,[10] but this separate step is not necessary if the transient inhibitory effect and the more persistent action are determined on the same sample of test material.

Summary

The saliva-glucose and salivary sediment tests for inhibition of acid formation by oral microorganisms have been compared as to their merit for predicting clinical findings and/or animal results for eleven substances, most of which have been tried in dentifrices for their caries-inhibiting properties. The predictions from the salivary sediment tests were in better agreement with the *in vivo* tests than were predictions from the saliva-glucose method.

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LIPSTICKS

(Continued from page 331)

Higher esters of both mono and dihydric alcohols are in quite common use in lipsticks. They exert some solvency on bromo acid. High enough concentration to dissolve the required amount of bromo acid, however, will cause the material to bleed out of the stick. All of these esters possess very low melting points; isopropyl myristate and isopropyl palmitate are liquid at ordinary room temperatures, while butyl stearate melts at 20° C. Used in the proper amount, these compounds will appreciably assist in reducing the thickness of high castor oil content films.

Several emollients have been tried in lipsticks, but only a comparative few have proved successful. Many women complain that certain lipsticks cause a drying of the lips; and, to overcome this difficulty, many manufacturers have used lanolin, lecithin, cetyl alcohol, spermaceti, and several other recognized emollients.

Lanolin aids in holding the lipstick mass together in a uniform homogeneous mixture; and, of course, it possesses excellent emollient properties. Due to the odorous character of the lanolin and to the fact that in some formulations a white cast is given to the applied film, it is advised that the amount used be kept below 10 per cent. This white cast is probably caused by the adsorption of water in the film due to the anhydrous state of the lanolin content. If used in the proper ratio, however, lanolin will help to prevent sweating of the solvent oils and render a certain amount of protection against acute temperature changes.

Another emollient sometimes used is lecithin, as it serves well in this capacity; and, at the same time, its addition to a stick lowers interfacial tension between the application and the lips, thus allowing a greater penetration of the dyes.

Cetyl alcohol is not too highly recommended for use in lipsticks as it renders a dull appearance to the applied film. It does, however, dissolve some bromo acid and is a good emollient.

Spermaceti can be used to increase the thixotrophy without an increase in the hardness of the stick; however, it is not used to any appreciable extent, as it is very friable and melts at too low of a temperature.

Glyceryl monostearate, in some forms, exerts a fine solvent action on bromo acid and finds rather extensive use in lipsticks. It adds body to the stick and is a good emollient.

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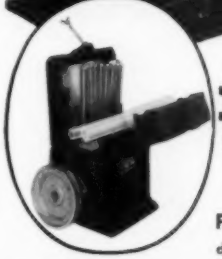

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Cocoa butter has lost some of its popularity as a lipstick ingredient. It has a good softening action on the lips but is somewhat sensitive to the method of manufacture. Improper cooling will cause the stick to take on a granular texture. If it is to be used, a maximum of eight per cent is recommended.

Highly purified, deodorized, and decolorized lard is a very good emollient and an excellent bromo acid solvent. It can be used in rather large proportions without ill results.

Absorption bases are used in comparatively large percentages. Those containing lanolin should be used with adequate control as they act somewhat similar to lanolin. Due to their hydrocarbon content a very attractive gloss is obtained, in the applied film. The amounts used in any stick are of necessity governed by the nature of the various other ingredients.

Various waxes are used to impart the different characteristics, such as hardners, thixotrophy, melting point, and ease of application. These waxes are used in amounts regulated by the nature of the other components making up the finished stick.

Carnauba wax is responsible for stiffening the stick and, if used in the proper proportions, will introduce to the stick exactly the right degree of thixotrophy. Its melting point is very high (83° C.), much higher than any of the other natural waxes. Candelilla wax is used for the same reason but to a somewhat lesser extent. Too much carnauba will cause a granular texture in the finished lipstick, so it is best to keep its concentration at the very lowest, usually less than five per cent.

Ceresin and ozokerite are both good stiffening agents, with ceresin exhibiting the most stiffening action. Since ceresin is merely a mixture of ozokerite and paraffin, it stands to reason that the same effect can be obtained by using these two waxes in combination as that of using ceresin alone. Ceresin can have a variety of melting points, depending upon the ratio of ozokerite to paraffin, thus affecting the melting point of the molded lipstick. A maximum of 25 per cent, dependent upon the melting point of the ceresin, can be used in this product, although most sticks contain about 20 per cent of this material. Its presence causes the molded stick to shrink away from the mold, thus making it much easier for the manufacturer to remove them. Ozokerite, on the other hand, is used more often to raise the melting point. A combination of ozokerite and carnauba is most efficient in this capacity.

Beeswax can be used to raise the melting point without adversely affecting the rigidity of the stick. It is an excellent binder, helping to produce a homogeneous mass. In large amounts it will cause granulation and assert a dulling effect; however, beeswax, like ceresin, assists in removal of the cast stick from the mold. Although a few manufacturers use this wax in concentrations exceeding 45 per cent, in the author's opinion 15 to 20 per cent is quite sufficient. Bromo acid is relatively insoluble in beeswax.

Mineral oils will impart the desired gloss to both the stick and the application. It is not a bromo acid solvent and serves no other function. It is advised that if mineral oil is to be used its concentration be kept at the very minimum needed to achieve the desired results, this minimum not exceeding at the very most 15 per cent, as large amounts reduce the viscosity and adversely affect adherence of the film to the lips, making it very easy to smear.

Water is not generally used in lipsticks. Some researchers have tried to produce emulsified lipsticks but have found the older formulas to be far superior to them in all respects. Emulsified lipsticks are very easily removed and/or smeared. Higher glycols, however, are used to some extent, because of the free hydroxyl groups they possess, making them good bromo acid solvents.

Short fiber petrolatum is used, to some extent, but its use in excessive amounts will result in a stick which drags on application and smears very easily. For petrolatum the maximum is set at 25 per cent, preferably less.

The subject of perfume, or more aptly, flavor, is a very significant one, as many women are just as impressed with the taste and odor of a lipstick as they are with the various other qualifications. Many perfume ingredients are undesirable in lipsticks, as they tend either to irritate the sensitive membranes of the lips, or they possess a very bitter and unpleasant taste. It is a good idea for the prospective lipstick manufacturer to discuss the problem of perfuming with a competent essential oil house, for they are equipped with the vast knowledge of the perfume industry and are therefore in a position to know what perfume raw materials are deleterious. As previously stated, the most popular flavors are raspberry and strawberry. Vanillin, coumarin, orange blossom, jasmin, and rose are a few of the other compounds used.

Before entering into a direct discussion of the formulation of lipsticks, it is well to delve, at least in part, into the subject of control. A series of tests is suggested in the following list and, especially when formulating a new lipstick, should be undertaken for each batch. This same rule applies to the formula decided upon. All subsequent batches of the lipstick should be subjected to a series of tests to ascertain and control the characteristics of the batch, thus enabling the manufacturer to produce a lipstick which does not vary in any way from one batch to another. Manufacturers should, and most of them do, feel that this is of the utmost importance.

1. The color should be checked against a predetermined standard. This is best done by the use of a photoelectric colorimeter. Although these instruments are somewhat expensive, they are well worth the initial price. It is difficult to match colors with the naked eye, since the thickness of the film has a decided influence upon the depth of color.

2. Visual examination will usually reveal air holes in the finished stick. A stick should be flamed several times and examined between flamings to be sure there are no hidden air pockets.

3. Application of the lipstick will give a good indication of its properties. It will reveal the amount of pressure needed to apply it, its tendency to smear, its indelibility, the greasiness and thickness of the film, and its relative hardness, although this can be ascertained by the melting point method.

4. Shelf tests should be initiated to reveal any tendency of the formulation to sweat or crumble during storage.

5. The melting point should be determined for each batch of lipstick manufactured. The procedure for this determination is described in the following paragraph.

> Weigh 15 grams of the lipstick to be tested into a tared cylinder, graduated in 0.1 milliliter or lower. Heat it gently until the stick melts and continue this heating until the mass is five degrees above its melting temperature. Note this temperature and the volume of the mass. Cool the lipstick to five degrees below its solidifying point, note the temperature, and measure the volume.

Since it is most difficult and in some cases impossible to determine the melting point of such an intricate mixture of fats and oils, what is called the dilation number is determined in its stead. This factor is actually the difference between the volume of the solid lipstick and that of the molten one. The following formula is then applied to the actual values:

$$V' - \frac{1/2\,(V'' + V''')}{W} \times \frac{1000}{1} = \text{Dilation at } 30^\circ \text{ C.}$$

Where V' = the volume of the untouched lipstick, V'' = the volume when heated to five degrees above its melting temp.; V''' = the volume when cooled to five degrees below its solidifying temperature, and W = the weight of the lipstick, or actually 15 grams.

This method is basically that of Willsmer (*Soap, Perf. and Cosmetics* 12, 501, 1939) and can be augmented by a sweating test, which can be run as follows:

> Place a lipstick into a glass jar and close the lid tightly. Place it into a constant temperature oven at 34° C. for several days and examine for sweating at regular intervals. Most lipsticks are capable of withstanding this temperature without melting; however, in the case of a low melting stick, a somewhat lower temperature is indicated.

The lipsticks currently on the market possess a wide variation of melting points with some as low as 50° C. and others as high or higher than 70° C. It is advised that a melting point of about 55° C. be strived for, as it is stable at ordinary temperatures, not too stiff in colder regions, and not too soft in warmer climates. The melting point is, of course, optional with the manufacturer and dependent upon what raw materials he wishes the lipstick to contain.

The method to be used in manufacturing the following formulations is not too difficult; and, unless otherwise indicated, the following procedure is applicable to all of the formulas presented.

Dissolve the bromo acid in the best bromo acid solvent in the formula as indicated by the foregoing dis-

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cussion, and heat to 160° F. with sufficient agitation to mix thoroughly and yet not rapid enough to incorporate air. For large batches a steam jacketed kettle is best, while small batches can be made on a steam bath.

The pigments should be weighed out and placed in a small powder mixer, then agitated until the color is constant.

The balance of the formula is placed into a separate container and heated with steam until it is just completely melted. The lake colors are stirred into this mass, and the whole is milled to assure uniform dispersion of the colors. This milled mixture is then added to the bromo acid solution in the first container and stirred until it is homogeneous.

The next step is the evacuation of any air that might have been trapped in the lipstick during the mixing. Some manufacturers heat the lipstick until it has liquified and allow it to stand at a high temperature until all of the air has risen to the top, then, after stirring once or twice, allow it to cool. This process is not completely effective in removing all of the entrapped air, and best results will be obtained by applying a vacuum to the molten mass just previous to casting.

The sticks are cast when the mass has dropped to a temperature about five degrees above its solidification point and chilled quickly by passing the mold through a refrigeration unit.

Finally, the sticks are removed and a flame is passed over them to bring out their glossy surface and to overcome any imperfections which may have been present in the mold. They are then ready for packaging and storage.

The following formulas offer to the chemist a wide variety of characteristics. It is up to him to decide exactly which properties he desires in the finished stick.

No. 1
LIPSTICK

Glyceryl Monostearate	40.0 Per Cent
Castor Oil	35.0 " "
Isopropyl Myristate	9.0 " "
Petrolatum	4.0 " "
Carnauba	4.0 " "
Bromo Acid	2.0 " "
Color Lakes	5.0 " "

No. 2
LIPSTICK

Absorption Base	16.0 Per Cent
Castor Oil	22.0 " "
Glyceryl Monostearate	20.0 " "
Ceresin	3.0 " "
Beeswax Yellow	12.0 " "
Carnauba	2.0 " "
Ozokerite	1.0 " "
Diethylene Glycol Monostearate	2.0 " "
Bromo Acid	2.0 " "
Isopropyl Palmitate	10.0 " "
Color Lakes	10.0 " "

No. 3
LIPSTICK

Lard, Purified	24.0 Per Cent
Ceresin	15.0 " "
Isopropyl Palmitate	10.0 " "
Butyl Stearate	5.0 " "
Beeswax, Yellow	18.0 " "
Lanolin	4.0 " "
Carnauba Wax	6.0 " "
Propylene Glycol Monostearate	6.0 " "
Bromo Acid	2.0 " "
Color Lake	10.0 " "

No. 4
LIPSTICK

Absorption Base	27.0 Per Cent
Beeswax	10.0 " "
Ceresin	15.0 " "
Carnauba	4.0 " "
Castor Oil	22.0 " "
Bromo Acid	3.0 " "
Color Lakes	10.0 " "
Isopropyl Myristate	9.0 " "

The ceresin used in these formulations should have a melting point close to 65° C.

No. 5
LIPSTICK

Beeswax	35.0 Per Cent
Castor Oil	35.0 " "
Lanolin Anhyd.	4.0 " "
Glyceryl Monostearate	9.0 " "
Isopropyl Myristate	5.0 " "
Bromo Acid	2.0 " "
Color Lakes	10.0 " "

No. 6
LIPSTICK

Petrolatum	20.0 Per Cent
Ceresin	25.0 " "
Isopropyl Palmitate	15.0 " "
Mineral Oil 230/260	4.0 " "
Carnauba Wax	7.0 " "
Beeswax	16.0 " "
Bromo Acid	3.0 " "
Color Lakes	10.0 " "

No. 7
LIPSTICK

Beeswax	30.0 Per Cent
Ozokerite	5.0 " "
Carnauba Wax	5.0 " "
Castor Oil	30.0 " "
Lanolin	5.0 " "
Cocoa Butter	10.0 " "
Glyceryl Monostearate	3.0 " "
Mineral Oil	5.0 " "
Bromo Acid	1.0 " "
Color Lakes	7.0 " "

Although it is not mentioned in the formulas, it is wise to include a preservative to guard against rancidity.

The subject of color can become very involved, as there are so very many shades used, ranging from red to yellow to purple. It has been found that most young girls prefer the flashy brighter reds and pinks; the ages between 25 and 40 prefer the more conservative reds, while the older women use lighter pinks with less coverage. There are many shades between the two extremes. It would indeed be difficult to include a formula for every color that might be desired; however, several shades are given in the following formulas which will serve to illustrate some of the more popular colors.

As shown by the preceding formulas, bromo acid is used at the rate of approximately two per cent. In some lipsticks all of this bromo acid is not dissolved, which means that there is more chance of the lipsticks staining the area surrounding the lips. In most cases a better product will result from the use of a combination of bromo acid and colored lakes rather than from bromo acid alone.

In these formulas both bromo derivatives and certified lakes are given. They are separated by a line. The bromo acids, of course, are dissolved in a suitable solvent, while the lakes are dispersed in the oils. Each color is made up to 12 or 13 parts and may be applied directly to the previous formulas.

No. 8
LIPSTICK COLOR
STANDARD RED

Bromo

D and C Orange No. 5	1 Part
D and C Red No. 21	1 "

Colored Lakes

D and C Red No. 11 Ca Lake	2.0 Parts
D and C Red No. 31 Ca Lake	2.5 "
D and C Red No. 19 Al Lake	3.0 "
D and C Red No. 9 Ba Lake	2.5 "

No. 9
LIPSTICK COLOR
BRIGHT RED

Bromo

D and C Red No. 21	1.0 Part
D and C Red No. 24	0.5 "
D and C Orange No. 5	0.5 "

Color Lakes

D and C Red No. 31 Ca Lake	2.0 Parts
D and C Red No. 19 Al Lake	2.0 "
D and C Red No. 9 Ba Lake	1.5 "
D and C Red No. 11 Ca Lake	0.5 Part
D and C Red No. 13 Sr Lake	4.0 Parts

No. 10
LIPSTICK COLOR
PINK

Bromo

D and C Orange No. 5	2.0 Parts

Color (Not Lakes)

D and C Red No. 19	6.0 Parts
D and C Red No. 37	2.8 "
D and C Red No. 13	1.0 Part
D and C Yellow No. 11	0.2 "

No. 11
LIPSTICK COLOR
DARK RED

Bromo

D and C Red No. 21	1.0 Part
D and C Red No. 24	1.0 "

Color Lakes

D and C Red No. 22	2.0 Parts
D and C Red No. 34 Ca Lake	4.0 "
D and C Red No. 12 Ba Lake	3.3 "
D and C Orange No. 3 Ba Lake	0.5 Part
D and C Yellow No. 5 Ba Lake	0.2 "

No. 12
LIPSTICK COLOR
MEDIUM RED

Bromo

D and C Orange No. 5	1.0 Part
D and C Red No. 21	1.0 "
D and C Red No 24	1.0 "

Color Lakes

D and C Red No. 19 Al Lake	2.5 Parts
D and C Red No. 9 Ba Lake	2.5 "
D and C Red No. 36 Ba Sulfate Lake	3.1 "
D and C Red No. 31 Ca Lake	1.9 "

The above shades range from pink to maroon; however, undoubtedly, some manufacturers will not find the color they desire, so, the only way for them to achieve the desired color is by experimentation. It should be borne in mind that the shade of red used will be somewhat different when it is incorporated into the finished lipstick than it appears when it is first made.

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